



TitraLab[®]
SAC850 & SAC950
Sample Changers

User's Guide

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Safety information

Please read this entire manual before unpacking, setting up, or operating this equipment. Pay attention to all danger and caution statements. Failure to do so could result in serious injury to the operator or damage to the equipment. To ensure that the protection provided by this equipment is not impaired, do not use and do not install this equipment in any manner other than that specified in this manual.

Precautionary labels

Read all labels and tags attached to the instrument. Personal injury or damage to the instrument could occur if not observed. A symbol, if noted on the instrument, will be included with a danger or caution statement in the manual.

	<p>This symbol, if noted on the instrument, references the instruction manual for operation and/or safety information.</p>
	<p>Electrical equipment marked with this symbol may not be disposed of in European public disposal systems after 12 August of 2005. In conformity with European local and national regulations (EU Directive 2002/96/EC), European electrical equipment users must now return old or end-of life equipment to the Producer for disposal at no charge to the user.</p> <p>Note: For return for recycling, please contact the equipment producer or supplier for instructions on how to return end-of-life equipment, producer-supplied electrical accessories and all auxiliary items for proper disposal.</p>



Consignes de sécurité

Veillez lire entièrement ce manuel avant de déballer, d'installer, ou d'utiliser cet équipement. Prêtez une attention particulière à tous les paragraphes intitulés "Danger !" ou "Attention !". L'absence de cette précaution pourrait occasionner des dommages corporels ou matériels.

Pour s'assurer de manipuler cet équipement en toute sécurité, n'utilisez pas ou n'installez pas cet équipement d'une autre façon que celle indiquée dans ce manuel.

Étiquettes de précaution

Lisez toutes les étiquettes apposées sur l'appareil. En cas de non-respect, vous risquez de vous blesser ou d'endommager l'appareil. Si un symbole apparaît sur l'instrument, il apparaîtra avec un message de danger ou de précaution dans le manuel.

	<p>Ce symbole, signalé sur l'appareil, renvoie au manuel de référence pour une information relative à l'utilisation de l'appareil et/ou à une consigne de sécurité.</p>
	<p>Il est interdit de jeter le matériel électrique portant la marque de ce symbole dans les décharges publiques européennes depuis le 12 août 2005. Conformément aux réglementations européenne, locales et nationales (Directive EU 2002/96/EC), les utilisateurs de matériel électrique de marque européenne doivent dorénavant retourner le matériel ancien ou en fin de vie à son fabricant lorsqu'ils souhaitent s'en débarrasser, sans que cela leur soit facturé.</p> <p>Note : Pour le recyclage, veuillez contacter le fabricant ou le revendeur du matériel afin de savoir comment retourner le matériel, les accessoires électriques fournis par le fabricant et tous les accessoires auxiliaires en fin de vie, afin qu'ils soient traités correctement.</p>



Sicherheitshinweise

Lesen Sie die Bedienungsanleitung sorgfältig und vollständig durch, bevor Sie das Gerät auspacken, aufstellen und in Betrieb nehmen. Beachten Sie bitte alle Hinweise, die mit Gefahr, Vorsicht bzw. Achtung gekennzeichnet sind. Nichtbeachtung dieser Informationen kann schwerwiegende Verletzungen der Anwender oder Beschädigung am Gerät zur Folge haben.

Damit die im Gerät vorgesehenen Schutzvorrichtungen nicht beeinträchtigt werden, darf das Gerät auf keinen Fall anders installiert oder benutzt werden, als in dieser Bedienungsanleitung beschrieben.

Warnetiketten

Beachten Sie alle am Gerät angebrachten Etiketten, Schilder und Aufkleber. Bei Nichtbeachtung dieser Warnetiketten können Verletzungen oder Schäden am Gerät auftreten. Wenn dieses Symbol am Gerät angebracht ist, sollten die zugehörigen Gefahrenhinweise oder Vorsichtsmaßnahmen in der Bedienungsanleitung beachtet werden.

	<p>Wenn dieses Symbol am Gerät angebracht ist, verweist es auf Bedienungs- und/oder Sicherheitshinweise in der Bedienungsanleitung.</p>
	<p>Elektrogeräte, die mit diesem Symbol gekennzeichnet sind, dürfen nach dem 12. August 2005 nicht im normalen öffentlichen Abfallsystem entsorgt werden, sondern müssen gesondert gesammelt werden. Nach den Maßgaben der EU-Richtlinie 2002/96/EG müssen Elektro- und Elektronik-Altgeräte kostenlos von den Nutzern zur Entsorgung an den Hersteller zurückgegeben werden können.</p> <p>Hinweis: Zur Rücknahme zwecks Recycling wenden Sie sich bitte an den Hersteller oder Lieferanten des Geräts, um Informationen zur Rückgabe von Elektro- und Elektronik-Altgeräten, zu den vom Hersteller gelieferten Elektrozubehör und zu allen Zusatzteilen zur vorschriftsmäßigen Entsorgung zu erhalten</p>



Información de seguridad

Le rogamos se sirva leer todo el manual antes de desembalar, de instalar o de trabajar con este instrumento. Preste especial atención a todas las indicaciones de peligro y advertencia, pues el no hacerlo puede provocar lesiones graves al usuario o averiar el equipo.

Para asegurar que no se deteriora la protección que ofrece este equipo, no use o instale el mismo de manera diferente a la especificada en este manual.

Etiquetas de seguridad

Lea todas las etiquetas y rótulos que lleva el instrumento. Si no se cumplen las indicaciones de los mismos podrían producirse lesiones personales o averías del instrumento. Los símbolos que aparezcan en el instrumento estarán incluidos en una indicación de peligro y advertencia del manual.

	<p>Si se encuentra este símbolo en el instrumento, consulte el manual de instrucciones para información de seguridad y/o funcionamiento.</p>
	<p>El equipo eléctrico marcado con este símbolo no se podrá desechar por medio de los sistemas europeos públicos de eliminación después del 12 de agosto de 2005. En cumplimiento de las reglamentaciones legales nacionales y locales (directiva europea 2002/96/CE), el fabricante se encarga de la eliminación gratuita de viejos instrumentos.</p> <p>Nota: Para el reciclado, póngase en contacto con el fabricante o distribuidor del equipo para obtener instrucciones sobre la correcta eliminación de instrumentos viejos, accesorios eléctricos suministrados por el fabricante y todos los elementos auxiliares.</p>



Informazioni sulla sicurezza

Si prega di leggere attentamente tutto il presente manuale prima di disimballare, configurare o porre in funzione lo strumento. Prestare attenzione a tutte le indicazioni di pericolo, attenzione o avvertenza. La mancata osservanza di tali indicazioni può causare lesioni, anche gravi, all'operatore o danneggiare lo strumento.

Per non pregiudicare la protezione intrinseca fornita da questo strumento, non utilizzarlo o installarlo con modalità diverse da quelle prescritte nel presente manuale.

Etichette di avvertimento

Leggere tutte le etichette e le targhette affisse sullo strumento. La mancata osservanza delle stesse può infatti causare lesioni personali o danni allo strumento. Ad ogni simbolo riportato sullo strumento corrisponderà un'indicazione di pericolo o avvertenza segnalata sul manuale.

	<p>Questo simbolo, se riportato sullo strumento, rimanda al manuale d'istruzione per le informazioni operative e/o relative alla sicurezza.</p>
	<p>Le apparecchiature elettriche contrassegnate con questo simbolo non possono essere smaltite attraverso sistemi di smaltimento pubblici europei dopo la data 12 agosto 2005. In conformità con i regolamenti europei locali e nazionali (a norma della direttiva UE 2002/96/CE), gli utenti dovranno restituire le apparecchiature vecchie o non più utilizzabili al produttore, il quale è tenuto a provvedere allo smaltimento gratuito.</p> <p>Nota: Per la restituzione finalizzata al riciclaggio, contattare il produttore o il fornitore dell'apparecchiatura per ottenere informazioni sulle modalità di restituzione dell'apparecchiatura, degli accessori e di tutti gli elementi accessori non più utilizzabili ai fini del corretto smaltimento</p>

Veiligheidsinformatie

Lees de gehele gebruiksaanwijzing door alvorens dit instrument uit te pakken, in te stellen of te gebruiken. Besteed speciaal aandacht aan alle waarschuwingen voor gevaren en aan de vermelde voorzorgsmaatregelen. Wanneer u dit nalaat, kan dit leiden tot ernstig letsel, of beschadigen aan het instrument.

U mag dit instrument op geen enkele andere wijze gebruiken dan is gespecificeerd in deze handleiding, om er zeker van te zijn dat de bescherming die door dit instrument wordt geboden niet wordt belemmerd.

Waarschuwingsetiketten

Lees alle labels en etiketten die aan en op het instrument zijn bevestigd. Niet naleven van deze waarschuwingen kan leiden tot persoonlijk letsel of beschadiging van het instrument. Als er op het instrument een pictogram is afgebeeld, staat er in de handleiding een desbetreffende waarschuwing.

	<p>Dit pictogram, indien het op het instrument wordt aangegeven, verwijst naar de bedieningshandleiding voor informatie ten aanzien van het gebruik en/of de veiligheid.</p>
	<p>Elektrische uitrusting met dit pictogram mag vanaf 12 augustus 2005 in Europa niet bij het afval worden gedeponeerd. In overeenstemming met Europese lokale en nationale voorschriften (EU-richtlijn 2002/96/EG) dienen Europese gebruikers van elektrische instrumenten hun oude of versleten apparatuur naar de fabrikant te retourneren voor kosteloze verwerking.</p> <p>Opmerking: Voor recycling moet u contact opnemen met de fabrikant of leverancier van het instrument voor instructies hoe het versleten instrument, de meegeleverde elektrische en overige accessoires moeten worden geretourneerd.</p>



Sikkerhedsoplysninger

Læs hele manualen, inden udpakning installation eller betjening af dette udstyr. Vær opmærksom på alle oplysninger om fare- og advarselsangivelser. Ellers kan operatøren få alvorlige kvæstelser, eller udstyret kan blive beskadiget.

For at sikre, at den beskyttelse, som dette udstyr giver, ikke forringes, må du ikke bruge eller installere dette udstyr på nogen anden måde end den, der er angivet i denne manual.

Forsigtighedsmærkninger

Læs alle mærkater og etiketter, der er sat på instrumentet. Der er risiko for personskade eller beskadigelse af instrumentet, hvis der ikke tages hensyn til dem. Hvis et symbol findes på instrumentet, findes det med en fare- eller forsigtighedsbemærkning i manualen.



	<p>Hvis dette symbol findes på instrumentet, henviser det til instruktionsmanualen for drift og/eller sikkerhedsoplysninger.</p>
	<p>Fra 12. august 2005 må bortskaffelse af udtjente elektroniske instrumenter med dette symbol ikke længere ske via de offentlige affaldshåndteringssystemer. I overensstemmelse med gældende lokale og nationale europæiske regler (EU-direktiv 2002/96/EF) skal europæiske brugere af elektrisk udstyr nu returnere gammelt eller udtjent udstyr til producenten uden beregning.</p> <p>Bemærk: I forbindelse med returnering til genbrug skal du kontakte producenten eller leverandøren af udstyret for at få instruktioner for, hvordan udtjent udstyr, elektrisk tilbehør leveret af producenten samt alle hjælpekomponenter bortskaffes korrekt.</p>

Säkerhetsinformation

Läs igenom hela handboken innan instrumentet packas upp, monteras eller startas. Beakta särskilt alla risk- och varningshänvisningar. Missaktas dessa kan operatören råka i fara eller utrustningen ta skada. Säkerställ att utrustningens inbyggda skydd ej skadas genom att den används eller installeras på annat sätt än angivet i denna handbok.

Säkerhetsskyltar

Beakta samtliga märken och skyltar på instrumentet. Personskador eller skador på instrumentet kan förekomma om de ej beaktas. Den här symbolen på instrumentet finns i handboken tillsammans med risk- och varningsinformation.

	<p>Denna symbol på instrumentet hänvisar till handboken för drift och/eller säkerhetsinformation.</p>
	<p>Efter den 12 augusti 2005 får elektrisk utrustning som har den här symbolen inte längre kastas på offentliga avfallsanläggningar i Europa. I överensstämmelse med de lokala och nationella föreskrifterna i Europa (EU-direktiv 2002/96/EC) ska användare av elektrisk utrustning inom Europa returnera gammal eller förbrukad utrustning till tillverkaren för avyttring utan kostnad.</p> <p>Obs! Vid returnering för återvinning, kontakta tillverkaren eller återförsäljaren för instruktioner om hur förbrukad utrustning, tillhörande elektrisk kringutrustning och tillbehör ska returneras på rätt sätt.</p>


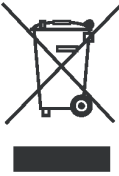
Informações de segurança

Antes de desembalar, instalar ou colocar este instrumento em funcionamento, leia este manual na sua totalidade. Preste especial atenção às indicações de perigo, aviso e cuidado. A inobservância destas indicações poderá resultar em ferimentos graves para o operador ou em danos no equipamento.

De modo a não comprometer a protecção fornecida por este equipamento, não deverá utilizar ou instalar o mesmo de outra maneira que não a especificada no presente manual.

Etiquetas de precaução

Leia todas as etiquetas e indicações fixadas no instrumento. A inobservância destas indicações poderá resultar em ferimentos ou em danos no instrumento. Os símbolos apresentados no instrumento estão incluídos no manual com uma indicação de perigo ou de cuidado.



	<p>Quando encontrar este símbolo no instrumento, isto significa que deverá consultar o manual de instruções para obter informações sobre o funcionamento do instrumento e/ou de segurança.</p>
	<p>Desde 13 de Agosto de 2005, os equipamentos eléctricos marcados com este símbolo não poderão ser depositados nos sistemas europeus públicos de recolha de resíduos. Em conformidade com a legislação europeia e nacional (Directiva europeia 2002/96/EC), os utilizadores europeus de equipamento eléctrico deverão devolver os equipamentos usados ou em fim de vida ao Fabricante, que procederá à sua eliminação sem quaisquer custos para o utilizador.</p> <p>Nota: Para recolha dos equipamentos a reciclar, contacte o respectivo fabricante ou fornecedor relativamente às instruções para devolução de equipamento em fim de vida, de acessórios eléctricos fornecidos pelo fabricante e das peças auxiliares para a devida eliminação</p>

Güvenlik bilgisi

Bu cihazı paketinden çıkarmadan, kurmadan veya çalıştırmadan önce lütfen bu kılavuzun tümünü okuyun. Tüm tehlike, uyarı ve dikkat ifadelerine özellikle dikkat edin. Bunların yapılmaması kullanıcının ciddi şekilde yaralanmasına veya cihazın hasar görmesine neden olabilir. Bu cihazın korumasının bozulmadığından emin olun, cihazı bu kılavuzda belirtilenden başka bir şekilde kullanmayın veya kurmayın.

Önlem etiketleri

Bu cihaza takılmış tüm etiketleri okuyun. Dikkat edilmemesi durumunda, kişisel yaralanma veya cihazda hasar meydana gelebilir. Bir sembol cihazda belirtiliyorsa, kılavuzda tehlike veya dikkat ifadesiyle bulunur.

	<p>Bu simge cihaz üzerinde bulunduğunda çalışma ve/veya güvenlik bilgileri için talimat kılavuzunu kaynak olarak göstermektedir.</p>
	<p>Bu sembolle işaretlenen elektrik cihazlarının 12 Ağustos 2005 tarihinden itibaren Avrupa ülkelerinde kamusal atık sistemlerinde imha edilmesi mümkün olmayacaktır. Yerel ve ulusal yasal düzenlemelere (AB direktifi 2002/96/EC) uygunluk çerçevesinde, üretici eski cihazların ücretsiz olarak imha edilmesi sorumluluğunu üzerine almaktadır.</p> <p>Not: İmha işlemi ile ilgili sorunlarınız için lütfen üreticiniz veya tedarikçiniz ile iletişime geçin.</p>



Πληροφορίες για την ασφάλεια

Παρακαλούμε διαβάστε ολόκληρο αυτό το εγχειρίδιο προτού αποσυσκευάσετε, εγκαταστήσετε ή λειτουργήσετε αυτόν τον εξοπλισμό. Δώστε ιδιαίτερη προσοχή σε όλες τις δηλώσεις που υποδεικνύουν επικίνδυνες καταστάσεις, τις προειδοποιήσεις και τις δηλώσεις προσοχής. Εάν δεν το κάνετε, ενδεχομένως να προκληθεί σοβαρός τραυματισμός του χειριστή ή βλάβη στον εξοπλισμό.

Φροντίστε να μην προκληθεί καμία βλάβη στις διατάξεις προστασίας του εξοπλισμού αυτού, να μην τον χρησιμοποιείτε και να μην τον εγκαθιστάτε με κανέναν άλλον τρόπο, εκτός από αυτούς που προσδιορίζονται σε αυτό το εγχειρίδιο.

Ετικέτες προφυλάξεων

Διαβάστε όλες τις ταμπέλες και τις ετικέτες που είναι επικολλημένες στη συσκευή. Εάν αυτό δεν γίνει, ενδέχεται να προκληθεί τραυματισμός ή βλάβη στον εξοπλισμό. Εάν επάνω στη συσκευή υπάρχει κάποιο σύμβολο, αυτό θα παραπέμπει σε κάποια δήλωση κινδύνου ή προσοχής στο εγχειρίδιο.

	<p>Το σύμβολο αυτό, εάν υπάρχει επάνω στη συσκευή, παραπέμπει σε πληροφορίες σχετικά με την ασφάλει ή/και το χειρισμό, στο εγχειρίδιο οδηγιών.</p>
	<p>Ο ηλεκτρικός εξοπλισμός που επισημαίνεται με αυτό το σύμβολο απαγορεύεται να απορρίπτεται στους δημόσιους χώρους απόρριψης των χωρών της Ευρωπαϊκής Ένωσης μετά τις 12 Αυγούστου 2005. Κατ' εφαρμογή των τοπικών και εθνικών κανονισμών των χωρών της Ευρωπαϊκής Ένωσης (Οδηγία ΕΕ 2002/96/ΕΚ), οι χρήστες ηλεκτρικού εξοπλισμού πρέπει να αποστέλλουν τον παλαιό εξοπλισμό ή τον εξοπλισμό που έχει τερματίσει τη διάρκεια ζωής του στον Παραγωγό για απόρριψη, χωρίς χρέωση του χειριστή.</p> <p>Σημείωση: Εάν θέλετε να επιστρέψετε τον εξοπλισμό για ανακύκλωση, επικοινωνήστε με τον παραγωγό του εξοπλισμού για να λάβετε οδηγίες σχετικά με τον τρόπο επιστροφής του παλαιού εξοπλισμού, των ηλεκτρικών εξαρτημάτων της δικής του παραγωγής και όλων των βοηθητικών αντικειμένων για σωστή απόρριψη.</p>



Информация по технике безопасности

Перед распаковкой, подготовкой к работе и эксплуатацией оборудования необходимо внимательно прочитать данное руководство по эксплуатации. Обратите особое внимание на указания по технике безопасности. Невыполнение этих требований может стать причиной серьезных травм или повреждения оборудования.

Для обеспечения степени защиты, предусмотренной для данного оборудования, его не следует устанавливать или эксплуатировать каким-либо иным способом, кроме указанных в данном руководстве.

Предупреждающие знаки

Ознакомьтесь со всеми знаками и наклейками на оборудовании. Пренебрежение может привести к травмам людей или повреждению оборудования. Каждому знаку, имеющемуся на оборудовании, соответствует предупреждение об опасности в тексте данного руководства.

	<p>Данный знак, если он присутствует на оборудовании, отсылает к инструкции по эксплуатации и/или правилам по технике безопасности.</p>
	<p>Начиная с 12 августа 2005 г. электрооборудование, отмеченное данным знаком, не может быть утилизировано в системах обработки обычных городских отходов в странах Европы. В соответствии с местным и национальным законодательством Европейского Союза (Директива ЕС 2002/96/ЕС), в странах Европы пользователи электрооборудования должны возвращать старое и отслужившее оборудование Изготовителю для утилизации, не неся при этом дополнительных расходов.</p> <p>Примечание: Для отправки отслужившего оборудования на утилизацию необходимо обратиться к изготовителю или поставщику за инструкциями о возврате собственно оборудования, а также поставляемых изготовителем принадлежностей к нему и вспомогательных изделий.</p>

Zasady zachowania bezpieczeństwa

Proszę przeczytać w całości niniejszy podręcznik przed przystąpieniem do rozpakowania, ustawiania lub obsługi urządzenia. Proszę zwrócić uwagę na wszystkie informacje o niebezpieczeństwach, zagrożeniach i ostrzeżeniach. Nieprzestrzeganie powyższego może prowadzić do poważnych obrażeń ciała lub uszkodzenia urządzenia.

Należy upewnić się, że systemy zabezpieczające wbudowane w urządzenie pracują prawidłowo. Nie należy używać ani montować tego urządzenia w inny sposób, aniżeli podany w niniejszym podręczniku.

Naklejki ostrzegawcze

Proszę przeczytać wszystkie naklejki i etykiety dołączone do urządzenia. Nieprzestrzeganie zawartych na nich ostrzeżeń może doprowadzić do obrażeń ciała i/lub uszkodzenia urządzenia. Taki symbol znajdujący się na przyrządzie, stanowi odwołanie do informacji zawartych w instrukcji obsługi, i/lub instrukcji bezpieczeństwa.

	<p>Taki symbol znajdujący się na urządzeniu odsyła do informacji zawartych w instrukcji obsługi lub zasad zachowania bezpieczeństwa.</p>
	<p>Od 12 sierpnia 2005 na terenie Unii Europejskiej urządzenia elektryczne oznaczone tym symbolem nie mogą być wyrzucane do publicznych systemów utylizacji odpadów. Zgodnie z lokalnymi i krajowymi przepisami, obowiązującymi na terenie Unii Europejskiej (Dyrektywa 2002/96/WE), użytkownicy urządzeń elektrycznych są zobowiązani do zwrotu starych lub wyeksploatowanych urządzeń producentowi, który je zutylizuje. Użytkownicy nie ponoszą żadnych kosztów związanych z tą operacją. Uwaga: Aby dowiedzieć się, jak zwrócić wyeksploatowane urządzenie, oprzyrządowanie elektryczne dostarczone przez producenta i wszelkie akcesoria pomocnicze do prawidłowej utylizacji, prosimy skontaktować się z producentem lub dostawcą.</p>



Bezpečnostní informace

Před rozbalením, instalací nebo uvedením tohoto přístroje do chodu si přečtěte celou tuto příručku. Pozorně čtěte zejména všechny informace týkající se nebezpečí, varování a upozornění. Nedodržení tohoto kroku může obsluhu způsobit vážná zranění nebo vybavení poškodit.

Zajistěte, aby nedošlo k oslabení ochrany poskytované tímto vybavením, nepoužívejte je způsobem, který by byl v rozporu s pokyny v této příručce.

Štítky s bezpečnostními informacemi

Přečtěte si všechny štítky a etikety připojené k zařízení. V případě nedodržení může dojít ke zranění nebo poškození zařízení. Symbol, pokud jej uvidíte na přístroji, bude obsažen i v oznámení o nebezpečí nebo upozornění v návodu.

	<p>Tento symbol, pokud je uveden na zařízení, odkazuje na provozní nebo bezpečnostní informace v uživatelské příručce.</p>
	<p>Od 12. srpna 2005 již není likvidace elektrických zařízení označených tímto symbolem prostřednictvím veřejných systémů likvidace k dispozici. V souladu s místními a vnitrostátními právními předpisy (směrnice EU 2002/96/EC) přebírá výrobce bezplatně odpovědnost za likvidaci starých zařízení.</p> <p>Poznámka: Chcete-li přístroj vrátit k recyklaci, obraťte se na výrobce nebo dodavatele zařízení, který vám poskytne pokyny o způsobu vrácení zařízení na konci životnosti, výrobcem dodávaného elektrického příslušenství a všech souvisejících předmětů k řádné likvidaci.</p>



Biztonsági tudnivalók

Kérjük, olvassa végig ezt a kézikönyvet a készülék kicsomagolása, beállítása vagy működtetése előtt. Különösen ügyeljen a veszélyre vagy elővigyázatosságra figyelmeztető minden leírásra. Ennek elmulasztása a kezelő súlyos sérüléséhez vagy a készülék károsodásához vezethet.

A készülék által biztosított védelem megőrzése érdekében ne használja és ne telepítse a készüléket a kézikönyvben meghatározottól eltérő módon.

Figyelmeztető címkék

Olvasson el minden, a készülékhez rögzített címkét vagy matricát. Ezek be nem tartásakor személyi sérülés vagy a készülék károsodása következhet be. A készüléken elhelyezett szimbólumokhoz veszélyre vagy elővigyázatosságra figyelmeztető leírás található a kézikönyvben.

	<p>Ha a készüléken ez a szimbólum látható, az a használati útmutató kezelési és/vagy biztonsági tudnivalóira utal.</p>
	<p>2005. augusztus 12. után az ezzel a szimbólummal ellátott villamos berendezések nem helyezhetők el az európai lakossági hulladékfeldolgozó rendszerekben. Az európai helyi és nemzeti jogi szabályozásnak megfelelően (2002/96/EK EU-irányelv) a gyártó ingyenesen vállalja a régi készülékek elhelyezését.</p> <p>Megjegyzés: Az újrahasznosításra való visszaküldésről vegye fel a kapcsolatot a berendezés gyártójával vagy szállítójával, hogy hogyan történik az elhasznált berendezés, elektromos tartozékok és egyéb kiegészítők visszaküldése megfelelő hulladékfeldolgozásra.</p>



Informații de siguranță

Vă rugăm să citiți integral manualul înainte de a despacheta, configura și utiliza acest echipament. Citiți cu atenție toate informațiile cu privire la pericole, avertismente și precauții. Dacă nu veți respecta aceste precizări, riscați să vă răniți sau să defectați echipamentul.

Pentru a vă asigura că protecția oferită de acest echipament nu este afectată, nu utilizați sau instalați acest echipament în alt mod decât cel precizat în acest manual.

Etichete de precauție

Citiți toate etichetele și marcajele atașate instrumentului. Nerespectarea acestor etichete poate provoca rănirea persoanelor sau avarierea instrumentului. Un simbol marcat pe instrument va fi inclus în manual împreună cu o precizare de pericol sau atenție.

	<p>Acest simbol, dacă este notat pe instrument, se regăsește în manualul de instrucțiuni referitor la funcționare și/sau siguranță.</p>
	<p>Echipamentul electric marcat cu acest simbol nu trebuie aruncat în cadrul sistemului european de utilitate publică, după 12 august 2005. În conformitate cu reglementările europene locale și naționale (Directiva UE 2002/96/EC), utilizatorii echipamentului electric european trebuie să returneze producătorului echipamentele vechi sau pe cele care au depășit durata de viață, pentru a fi reciclate, fără taxe aplicate utilizatorului.</p> <p>Notă: În scopul returnării pentru reciclare, vă rugăm să contactați producătorul echipamentului sau furnizorul pentru instrucțiuni despre returnarea echipamentelor, accesoriilor furnizate de producător și a tuturor elementelor auxiliare care nu mai sunt în durata de viață, pentru a fi reciclate corespunzător.</p>

Информация за безопасност



Моля, внимателно прочетете ръководството преди разопаковане, инсталиране и експлоатация на оборудването. Обърнете внимание на всички предупреждения за повишено внимание и опасност.

Неспазването им може да доведе до сериозни наранявания на оператора или повреда на оборудването.

Уверете се, че защитата, осигурявана от оборудването, не е нарушена, не използвайте или инсталирайте същото по какъвто и да било друг начин, освен предписания в настоящото ръководство.

Предупредителни етикети

Прочетете всички етикети и табелки, прикрепени към инструмента. При неспазване е възможно да се предизвика телесно нараняване или повреда на инструмента. Символ, който ако е отбелязан върху инструмента, ще бъде включен с предупреждение за опасност или повишено внимание в ръководството.



	<p>Ако е отбелязан върху инструмента, настоящият символ означава, че е необходимо да се направи справка с ръководството за работа и/или информацията за безопасност.</p>
	<p>След 12 август 2005 г. електрическо оборудване, маркирано с този символ, не може да бъде изхвърляно в обществените сметища в Европа. В съответствие с местните европейски и национални наредби (Директива 2002/96/ЕО на ЕС), ползвателите на електрическо оборудване в Европа трябва да връщат старо или излязло от употреба оборудване на производителя за унищожаване безплатно.</p> <p>Забележка: При връщане за целите на рециклирането, моля, обърнете се към производителя или доставчика на оборудването за допълнителни инструкции, за това как да върнете излязло от употреба оборудване, доставени от производителя електрически принадлежности и спомагателни материали с оглед на тяхното правилно унищожаване.</p>

Bezpečnostné informácie

Pred vybalením, nastavením alebo prevádzkou tohto zariadenia si prečítajte prosím celý návod. Dávajte pozor na všetky upozornenia na nebezpečie. Ak by ste tak neurobili, môže to mať za následok vznik vážnych zranení obsluhy alebo poškodenie zariadenia. Ak chcete zabezpečiť, aby bezpečnosť tohto zariadenia nebola porušená, nepoužívajte alebo neinštalujte toto zariadenie iným spôsobom, ako je uvedený v tomto návode.

Výstražné nálepky

Prečítajte si všetky nálepky a štítky umiestnené na zariadení. Ak tak neurobíte, môže to mať za následok zranenie osôb alebo poškodenie prístroja. Ak sa symbol nachádza na prístroji, v tomto návode je vysvetlený spolu s upozornením na nebezpečie.

	<p>Tento symbol, ak je umiestnený na prístroji, odkazuje na návod na obsluhu, kde nájdete informácie o prevádzke a/alebo bezpečnosti.</p>
	<p>Elektrické zariadenie označené týmto symbolom nesmie byť po 12. auguste 2005 zlikvidované európskym systémom verejnej likvidácie odpadov. Podľa európskych miestnych a národných predpisov (smernica EU 2002/96/ES), európski používatelia elektrických zariadení musia teraz vrátiť staré zariadenie alebo zariadenie po ukončení jeho životnosti výrobcovi, ktorý ho musí zlikvidovať na svoje náklady.</p> <p>Poznámka: Pri vrátení na recykláciu sa skontaktujte prosím s výrobcom alebo dodávateľom zariadenia, aby vám poskytol pokyny ako vrátiť zariadenie po ukončení jeho životnosti, elektrické príslušenstvo dodané výrobcom a všetky pomocné položky, aby ich správne zlikvidoval do odpadu.</p>



Varnostne informacije

Preden odpakirate, nastavite in začnete z uporabo opreme, preberite celoten priročnik. Bodite pozorni na izjave o nevarnosti, opozorila in previdnostne ukrepe. Če jih ne upoštevate, lahko povzročite hude poškodbe operaterja ali poškodovanje opreme.

Da ne boste ogrozili zaščite te opreme, jo uporabljajte ali nameščajte izključno na način, ki je naveden v tem priročniku.

Opozorilne nalepke

Preberite vse nalepke in oznake instrumenta. Če jih ne upoštevate, lahko pride do osebnih poškodb ali poškodovanja instrumenta. Če je instrument označen s simbolom, bodo v priročniku zanj navedeni podatki o nevarnosti ali potrebni previdnosti.

	<p>Če je instrument označen s tem simbolom, se nanaša na priročnik z navodili za uporabo in/ali varnostne informacije.</p>
	<p>Električne opreme, ki je označena s tem simbolom, v Evropi od 12. avgusta 2005 ni dovoljeno odlagati v javne sistem za odlaganje. V skladu z evropskimi lokalnimi in državnimi predpisi (Direktiva EU 2002/96/ES) morajo uporabniki električne opreme v Evropi izrabljeno opremo povsem brezplačno vrniti proizvajalcu, ki poskrbi za njeno odstranitev.</p> <p>Opomba: Da bi opremo vrnil v recikliranje, se obrnite na proizvajalca ali prodajalca, ki vam posreduje navodila, kako izrabljeno opremo, originalno električno dodatno opremo in ostalo vrnete v ustrezno odlaganje.</p>



Bezbednosne informacije

Pažljivo pročitajte celo ovo uputstvo pre nego što raspakujete, montirate i počnete da koristite ovaj uređaj. Pazite na tekst označen rečima "Opasnost", "Upozorenje" i "Pažnja". Ukoliko se toga ne budete pridržavali, može doći do teških povreda operatera ili oštećenja opreme.

Pazite da se zaštita koja se isporučuje uz uređaj ne ošteti i nemojte da koristite ovaj uređaj na bilo koji način koji se razlikuje od onog opisanog u ovom priručniku.

Oznake predostrožnosti

Pročitajte sve oznake postavljene na instrument. Ukoliko ne vodite računa o njima, može doći do povređivanja ili oštećenja instrumenta. Simbol koji se nalazi na instrumentu biće praćen odgovarajućim tekstom o opasnosti ili upozorenju u priručniku.

	<p>Ukoliko se ovaj simbol nalazi na instrumentu, to znači da je neophodno informacije o načinu korišćenja i/ili bezbednosti potražiti u priručniku za korišćenje.</p>
	<p>Električna oprema označena ovim simbolom ne sme se odlagati u evropske javne sisteme za odnošenje otpada posle 12. avgusta 2005. U skladu sa evropskim lokalnim i nacionalnim propisima (EU direktiva 2002/96/EC), korisnici električne opreme u Evropi sada moraju da vrate staru opremu i opremu na kraju životnog veka proizvođaču koji će je odložiti bez dodatnih troškova po korisnika.</p> <p>Napomena: Za vraćanje opreme radi recikliranja obratite se proizvođaču opreme ili dobavljaču. On će vam dostaviti informacije o načinu vraćanja opreme čiji je životni vek istekao, dodatne električne opreme koju vam je isporučio proizvođač, kao i svih pomoćnih stavki kako bi bili odloženi na pravilan način.</p>

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1. Introduction

The SAC850 and SAC950 Sample Changers are designed for automatic analysis in various types of trays.

Each tray can hold up to 70 samples depending on the sample volume and the application to be performed.

The SAC850 Basic model is dedicated for small sample series automation. The SAC850 is fitted with a single radius tray and can hold 14 to 25 samples.

The SAC950 Extended model is dedicated for large sample series automation. The SAC950 is fitted with a 1, 2 or 3-radii tray and can hold 14 to 70 samples.

The SAC850 and SAC950 Sample Changers are ideal for handling samples in TitraLab® or MeterLab® compatible systems.

The aim of this User's Guide is to provide you with detailed information about setting up and operating your sample changer.

For information on how to enter data into your workstation, please refer to the instructions delivered with the workstation.

Warning !

The sample changer has been developed to meet the requirements of volumetric titration applications. It is therefore aimed at experienced users who have the knowledge required to operate the instrument and implement the security instructions enclosed. Please remember that the sample changer must not, under any circumstances, be used to perform tests on living beings.

We accept no responsibility for using the sample changer and its peripheral devices under conditions that are not specified in this User's Guide.

Compliance with FCC rules, part 15

Information to the user

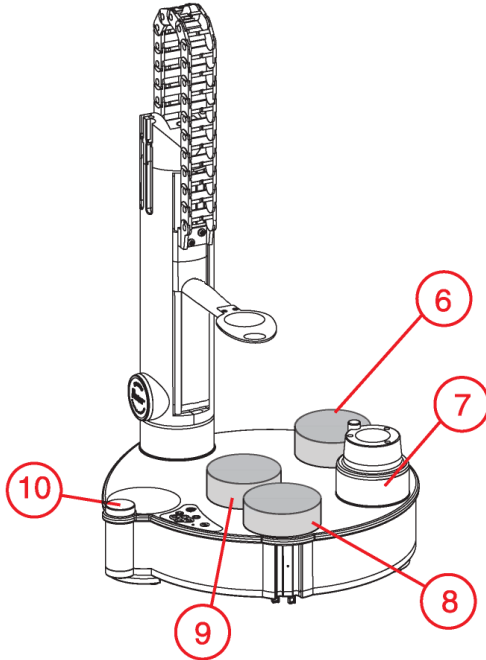
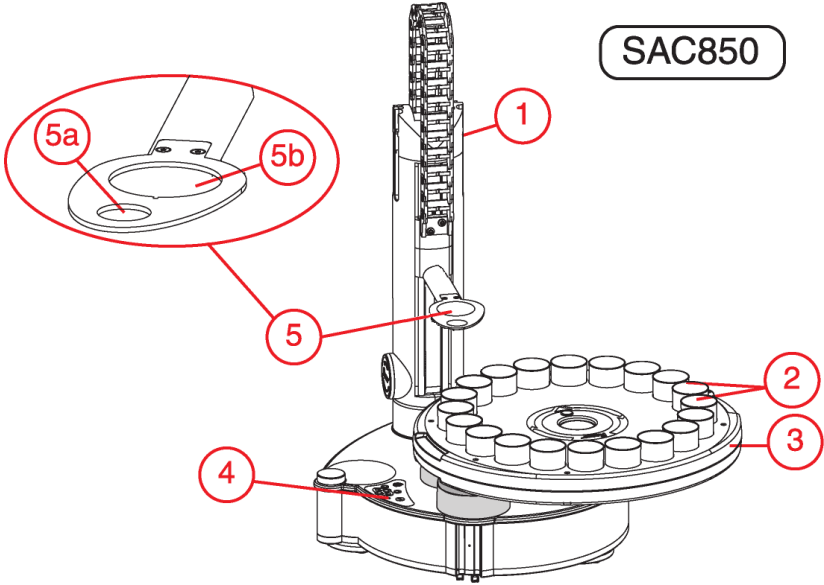
NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception which can be determined by turning the equipment off and on, the user is encouraged to try to correct interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
- Use a shielded RS232 serial cord and a shielded USB cord fitted with a ferrite.

Warning!!

Changes and modifications that are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

SAC850

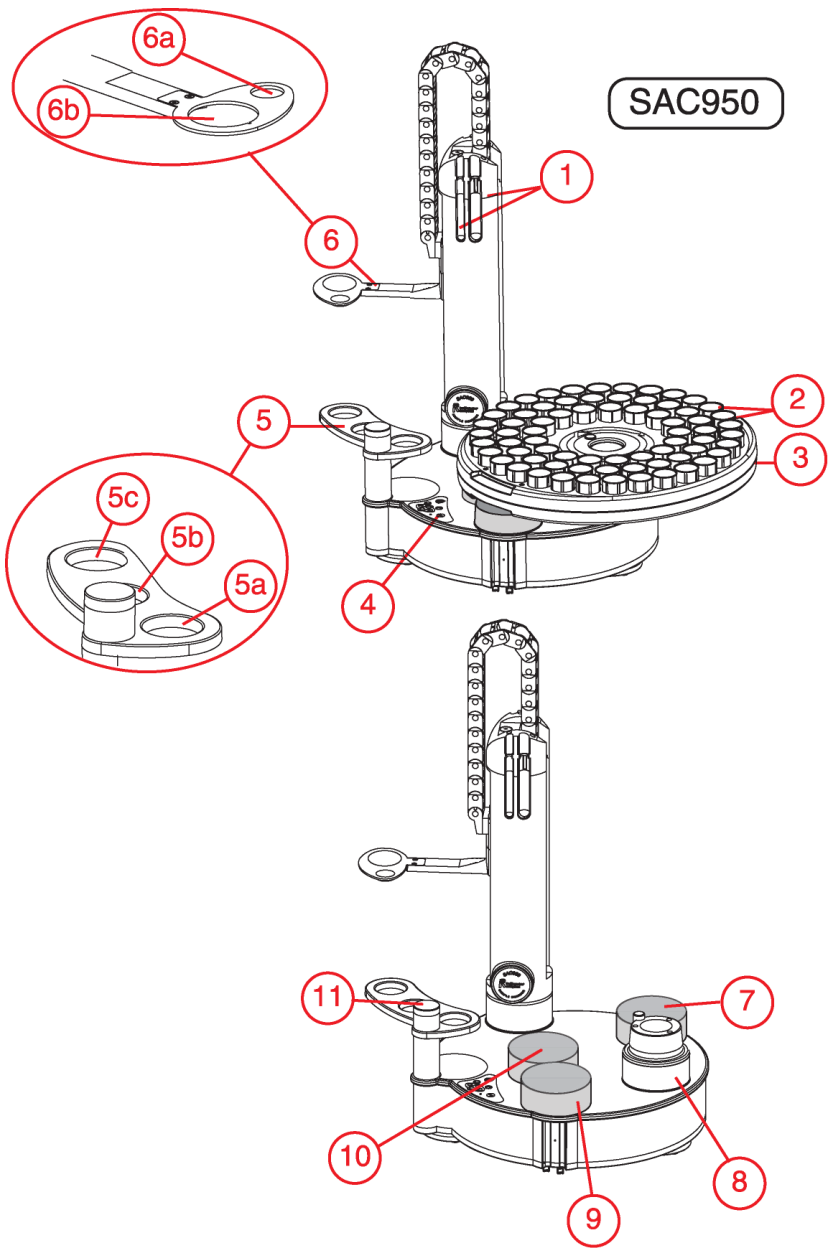


2. Presentation

SAC850

- ① 4 locations for spare electrodes and antidiffusion delivery tips (2 locations on each side).
- ② Sample/Rinse/Park beakers (1 Park, 0 to 2 Rinses, remaining positions dedicated for samples).
- ③ Mono radius turntable. Capacities depend on the beaker size and diameter : see chapter "Accessories" - Table "Turntables and beakers (SAC850 and SAC950)".
- ④ Keypad.
- ⑤ Electrodes/Stirrer/Beaker presence detector holder.
Beaker presence detector location **(5a)**.
Electrodes/stirrer head holder location **(5b)**.
- ⑥ Optional peristaltic pump (optional).
- ⑦ Turntable holder.
- ⑧ Optional shower rinse pump/emptying pump module. Comprises 2 diaphragm pumps (rinsing and emptying).
- ⑨ Magnetic stirrer assembly comprising also a RFID reader device for turntable automatic recognition.
- ⑩ Status lamp:
Blue, blinking : Free for operation. Manual operations possible.
Purple: Sample changer controlled by the workstation (analysis in progress). Only the keyboard **Stop** key is available.
Red: An error has been detected.

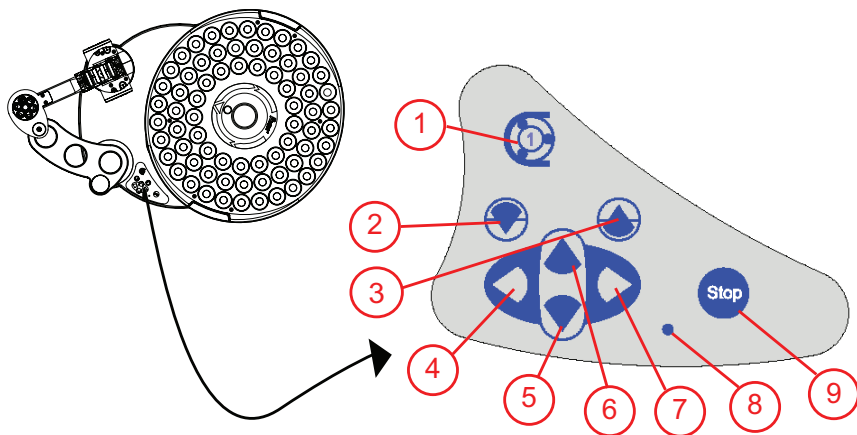
SAC950



SAC950

- ① 4 locations for spare electrodes and antidiffusion delivery tips (2 locations on each side).
- ② Sample beakers.
- ③ 1, 2 or 3 radii turntable. Capacities depend on the beaker size and diameter : see chapter "Accessories" - Tables "Turntables and beakers".
- ④ Keypad.
- ⑤ Beaker extension with Park (5a), Rinse 1 (5b) and Rinse 2 (5c) beaker locations.
- ⑥ Electrodes/Stirrer/Beaker presence detector holder.
Beaker presence detector location (6a).
Electrodes/stirrer head holder location (6b).
- ⑦ Optional peristaltic pump.
- ⑧ Turntable holder.
- ⑨ Optional shower rinse pump/emptying pump module. Comprises 2 diaphragm pumps (rinsing and emptying).
- ⑩ Magnetic stirrer assembly comprising also a RFID reader device for turntable automatic recognition.
- ⑪ Status lamp:
Blue, blinking : Free for operation.
Manual operations on keyboard are possible
Purple: The sample changer is controlled by the workstation unit (analysis in progress). Only the keyboard **Stop** key is available.
Red: An error has been detected.

Keypad



- ① Starts adding reagent with peristaltic pump (*). Stops addition when the key is latched down.
- ② Starts shower rinsing using a membrane pump of the Dynamic rinsing module (**). Stops action when the key is latched down.
- ③ Starts emptying a beaker using the second membrane pump of the Dynamic rinsing module (**). Stops action when the key is latched down.

(*) If a Reagent addition module is installed (see chapter "Setting up") and if the electrode holder is at its downmost position.

(**) If a Dynamic rinsing module is installed (see chapter "Setting up") and if the electrode holder is at its downmost position.

④ Moves to the previous beaker. If the electrodes dip into the beaker (or are above the beaker) before pressing the key, at the end of the operation, they will dip into the previous beaker (or will be above the previous beaker). The beakers are ranked as follows:

Rinse beaker 2 (R2)
Rinse beaker 1 (R1)
Park beaker
Beaker no.1 of the turntable
.....
Beaker no.n-1 of the turntable
Beaker no.n (last beaker) of the turntable
Rinse beaker 2 (R2)
.....

⑤ Moves the arm (electrode head holder) downwards.

⑥ Moves the arm (electrode head holder) upwards or moves the electrodes above the Park beaker if the electrodes are already on service position (upmost position).

⑦ Moves to the next beaker. Same observations as for the "Moves to the previous beaker" key (④).

⑧ Blue pilot lamp. Lights on when a key is pressed and lights off when the key is latched down. This lamp blinks when the key is not available (example: during an analysis, when a key other than **Stop** is pressed).

⑨ **Stop** key. Stops the action in progress while a sequence is running. Removes an error status (red status pilot lamp). The **Stop** key is the only active key while a sequence is running.

(***) Beaker no.n = last beaker of a SAC950 turntable or last sample beaker of a SAC850 turntable.

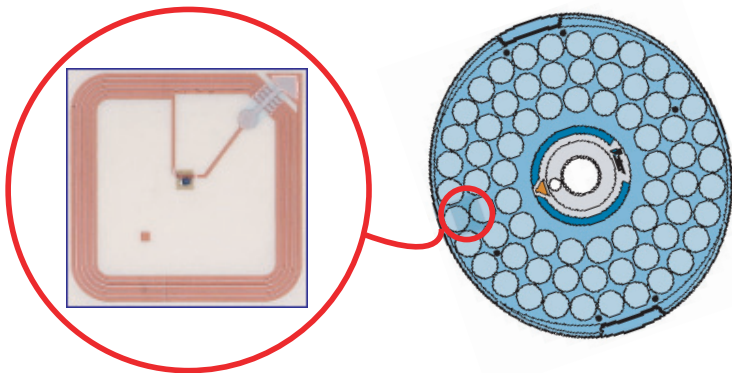
RFID technology on turntables

What's RFID means and how does it work?

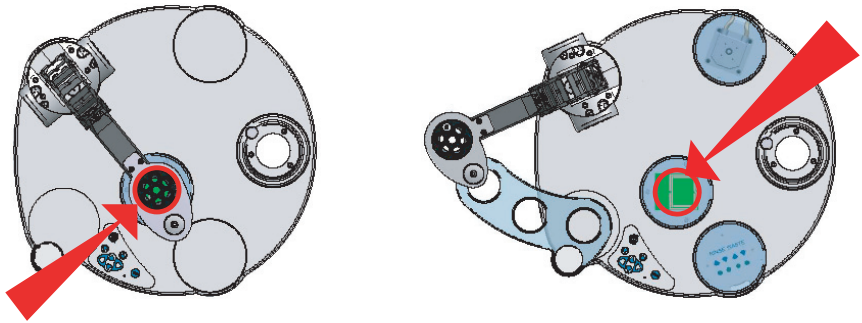
Radio Frequency IDentification (RFID) is a generic term that is used to describe a system that transmits the identity (in the form of a unique serial number) of an object or person wirelessly, using radio waves. It's grouped under the broad category of automatic identification technologies.

It's the combination of a "tag" and a "reader". A typical RFID tag consists of a microchip attached to a radio antenna mounted on a substrate. The chip can store data. The reader is used to retrieve the data stored on an RFID tag. A typical reader is a device that has one or more antennas that emit radio waves and receive signals back from the tag. The reader then passes the information in digital form to a computer system.

In our assembly an RFID tag is attached inside the turntable at the first beaker level position. This tag is clearly visible.



RFID tag placed on the turntable



*RFID reader mounted inside the Magnetic stirrer assembly
SAC850 on the left and SAC950 on the right*

The RFID reader is mounted inside the Magnetic stirrer assembly (see figure above). When an analysis is started and a turntable is in place, the sample changer rotates the tray (and the arm in the case of a SAC950) so that the tag and the reader are face to face for a moment.

Which data contains a turntable RFID tag?

The turntable identification data (type of turntable, number of beakers, beaker location and beaker size/height).

Benefits of using RFID technology on turntables

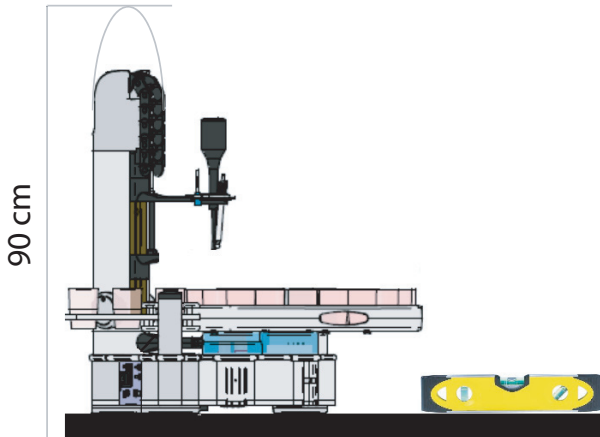
The Sample Changer knows at any moment if a turntable is installed and which turntable is used.

3. Setting up

Important: Never, at any time during setup or use of the instrument, manually move the arm or turntable even if blocked. Manual movement may cause damage to the motor axis, which in turn can cause excessive play resulting in positioning errors.

Note: Unless otherwise indicated, the following setting up instructions are common to both SAC850 and SAC950 Sample Changers.

Set up the instrument on a flat and horizontal surface and in a properly ventilated place. Use a spirit level to check the surface is flat.



The power supply connectors on the rear panel must remain accessible so that you can quickly disconnect the cables in case of emergency. The room temperature should not exceed 40°C.

The relative humidity must be between 20 and 80%.

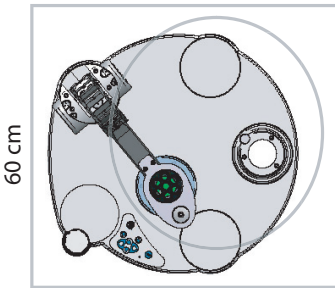
Minimum space requirements

(SAC850): 90 cm x 70 cm x 60 cm (36" x 28" x 24")

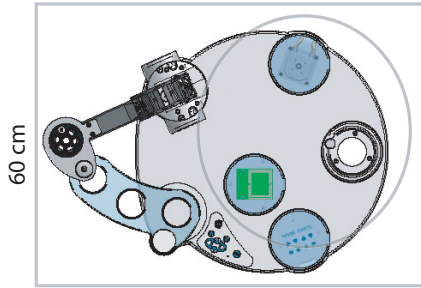
(SAC950): 90 cm x 80 cm x 60 cm (36" x 32" x 24")

70 cm

80 cm



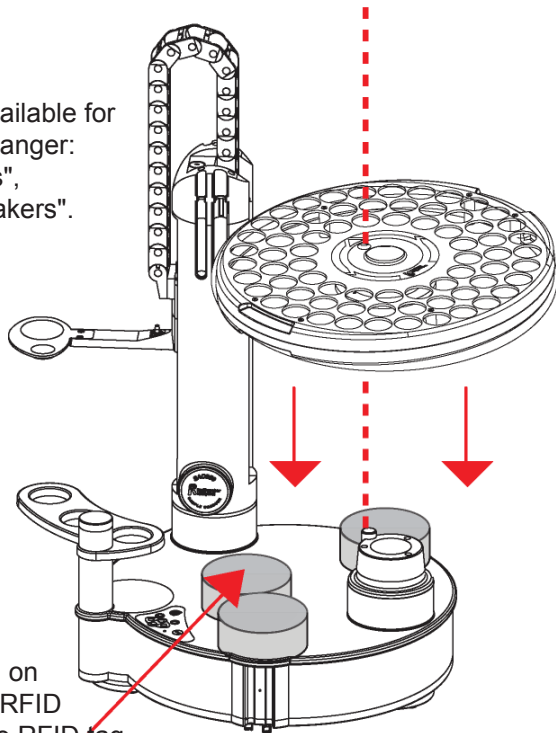
SAC850



SAC950

Mounting the turntable

Several turntables are available for each model of sample changer: see chapter "Accessories", table "Turntables and beakers".



The turntable is identified on starting an analysis. The RFID reader reads the turntable RFID tag

Placing beakers

Park beaker

At the end of a sample series, the electrodes are dipped in the park beaker or left above the park beaker. The park beaker can also be used to rinse dynamically the electrodes.

Positioning of the park beaker (see figures below):

SAC850: Last position of the turntable

SAC950: On the electrode reconditioning extension

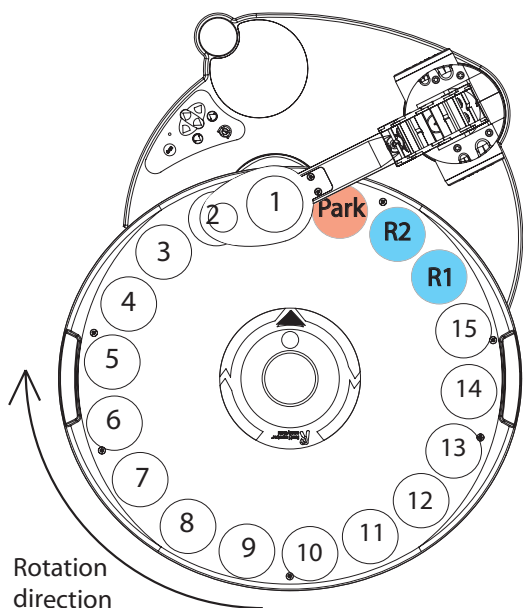
Static rinse beakers

Between 2 sample runs, the electrodes are dipped once or twice into a rinse solution under stirring. 1 or 2 static rinse beakers can be used.

Positioning of the static rinse beaker(s)

SAC850: Last but one (**R1**) and previous (**R2**) positions of the turntable

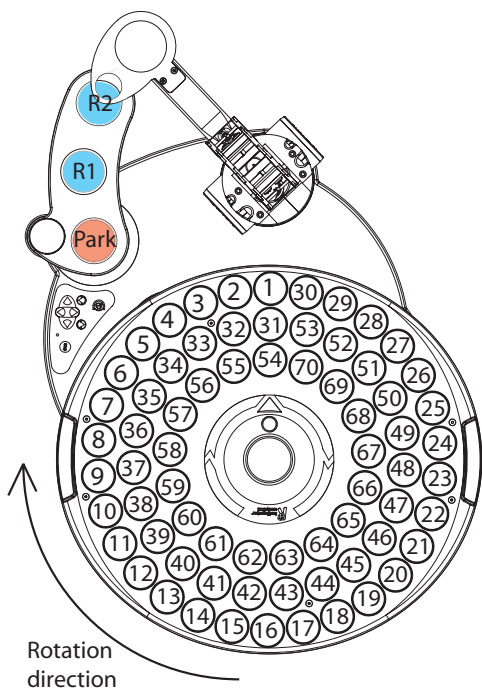
SAC950: On the electrode reconditioning extension, positions (**R1**) and (**R2**)



R1: Static rinse beaker no. 1
R2: Static rinse beaker no. 2

Other positions: Sample beakers (15 free position if 2 static rinses programmed)

Position of the beakers on a SAC850
Example of a 18-position turntable



R1: Static rinse beaker no. 1
R2: Static rinse beaker no. 2

Positions 1 to 70:
 Sample beakers

*Position of the beakers on a SAC950
 Example of a 70-position turntable*

SAC850 users:

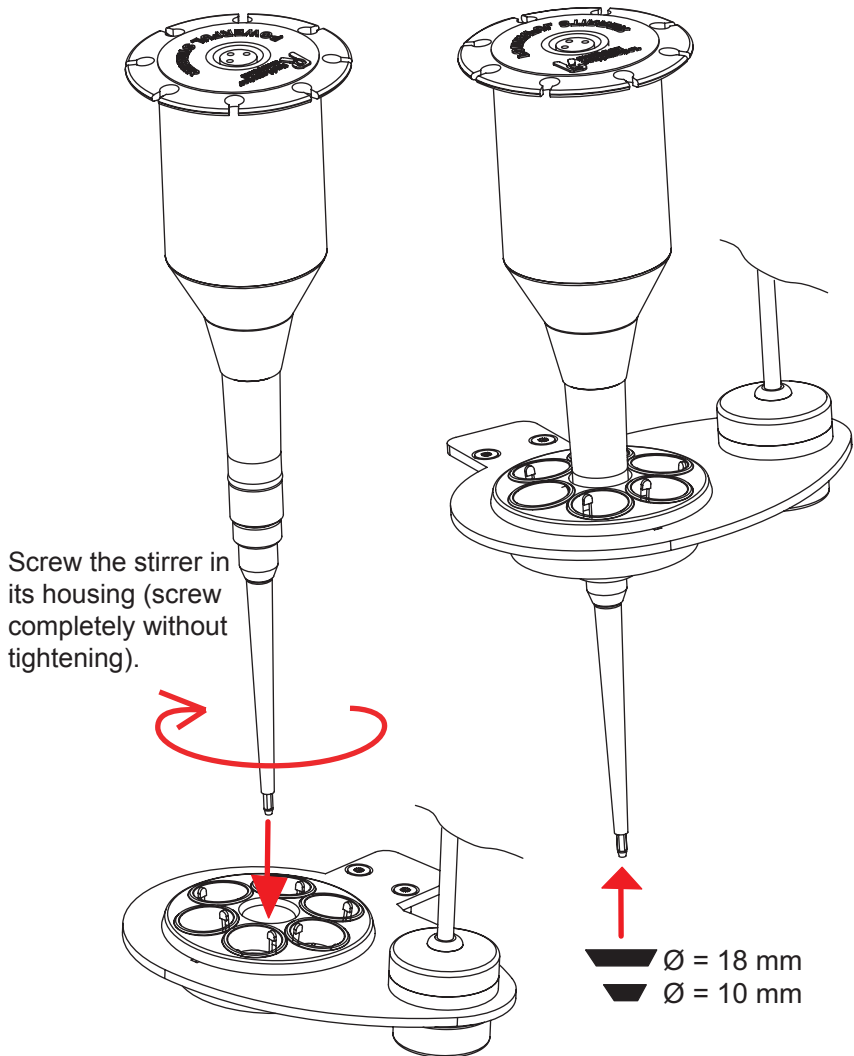
Park, static rinse and sample beaker sizes depend on the type of turntable used. These beakers are supplied with some of the turntable kits (see chapter "Accessories").

SAC950 users:

Park and static rinse beakers are 40-100 ml PP titration vessel, supplied with the SAC950, part no.: X91T055 (10 pcs).

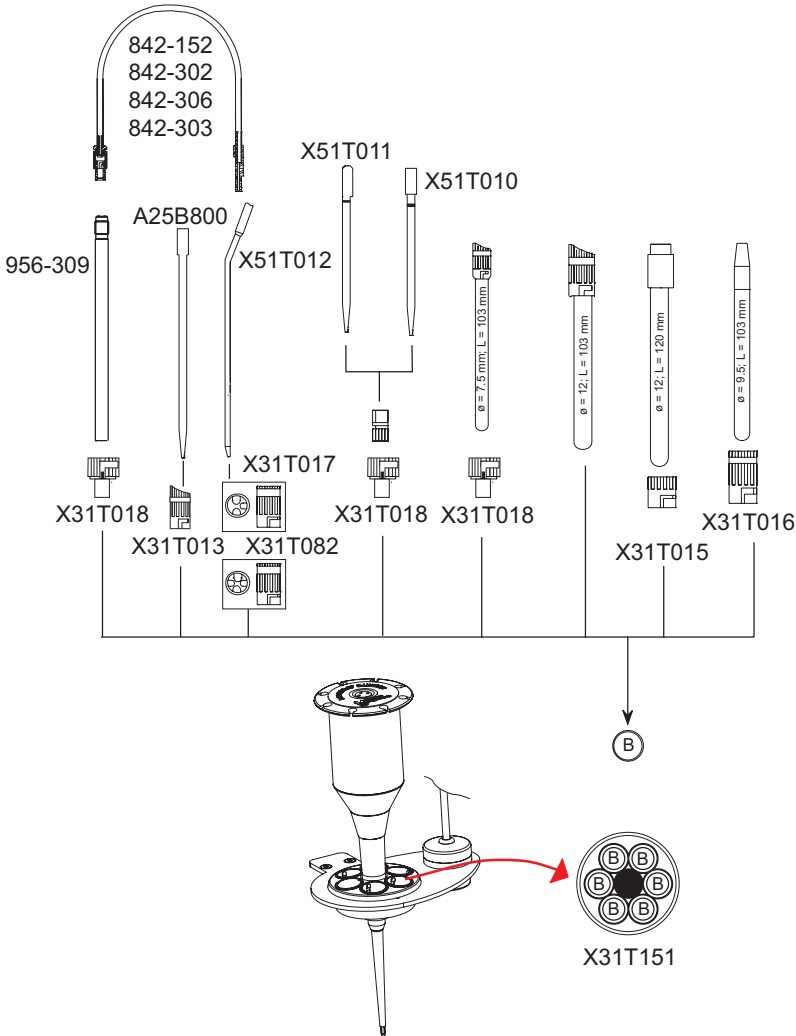
Sample beaker sizes depend on the type of turntable used. These beakers are supplied with some of the turntable kits (see chapter "Accessories").

Mounting the propeller stirrer



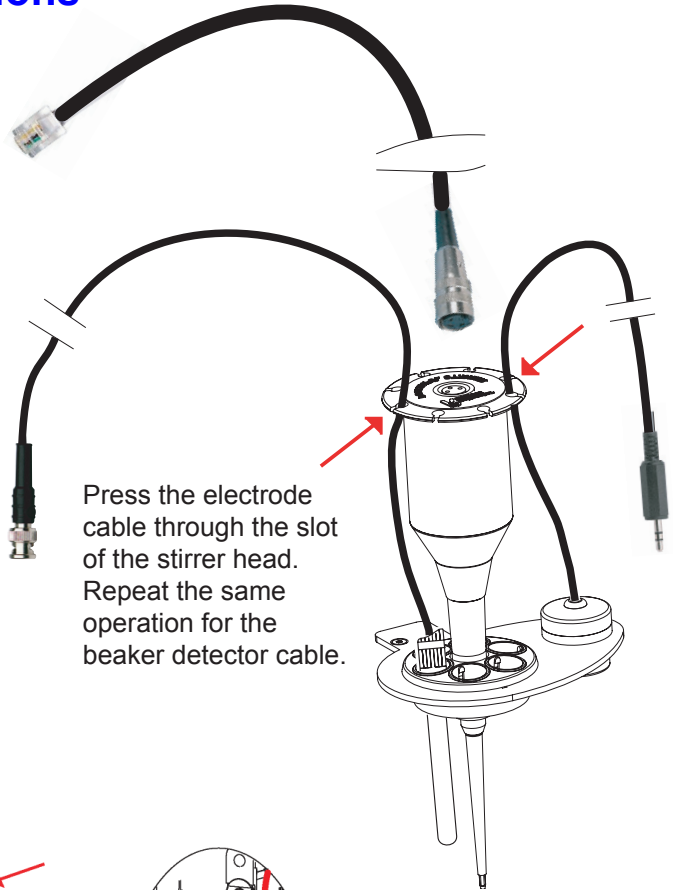
The propeller stirrer is supplied with 2 propellers 10 & 18 mm. Fit the right propeller according to the size of the beaker (see chapter "Accessories", table "Turntables and beakers").

Mounting the electrodes and addition tips

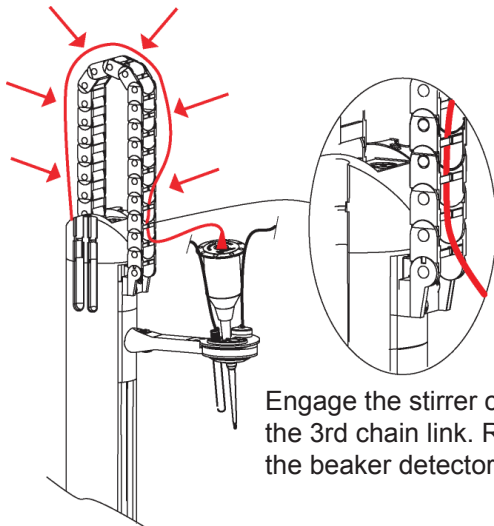


A set of adapters for bayonet electrode heads, part no. X91T101 is supplied with the sample changer.

Connections

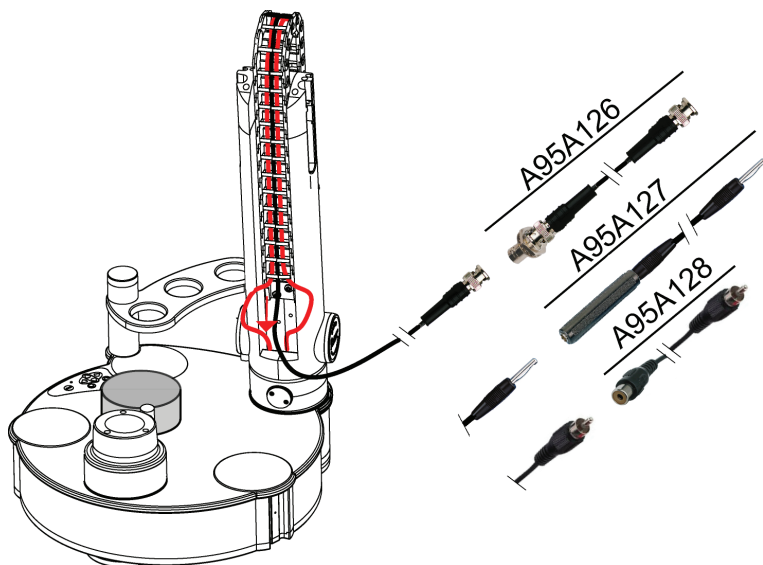


Press the electrode cable through the slot of the stirrer head. Repeat the same operation for the beaker detector cable.



Engage the stirrer cable in the cable carrier from the 3rd chain link. Repeat the same operation for the beaker detector and electrode cables.

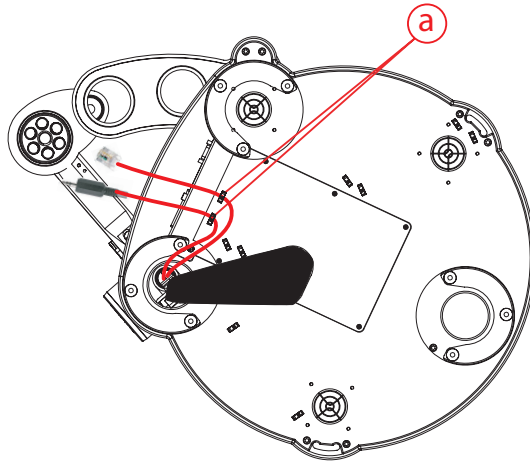
Insert the stirrer and beaker detector cables in the opening of the arm then slip these cables under the sample changer in order to present the plugs at the connection panel of the instrument. Slightly level up the instrument to facilitate this operation.



Connect the electrode the corresponding socket of the workstation unit.

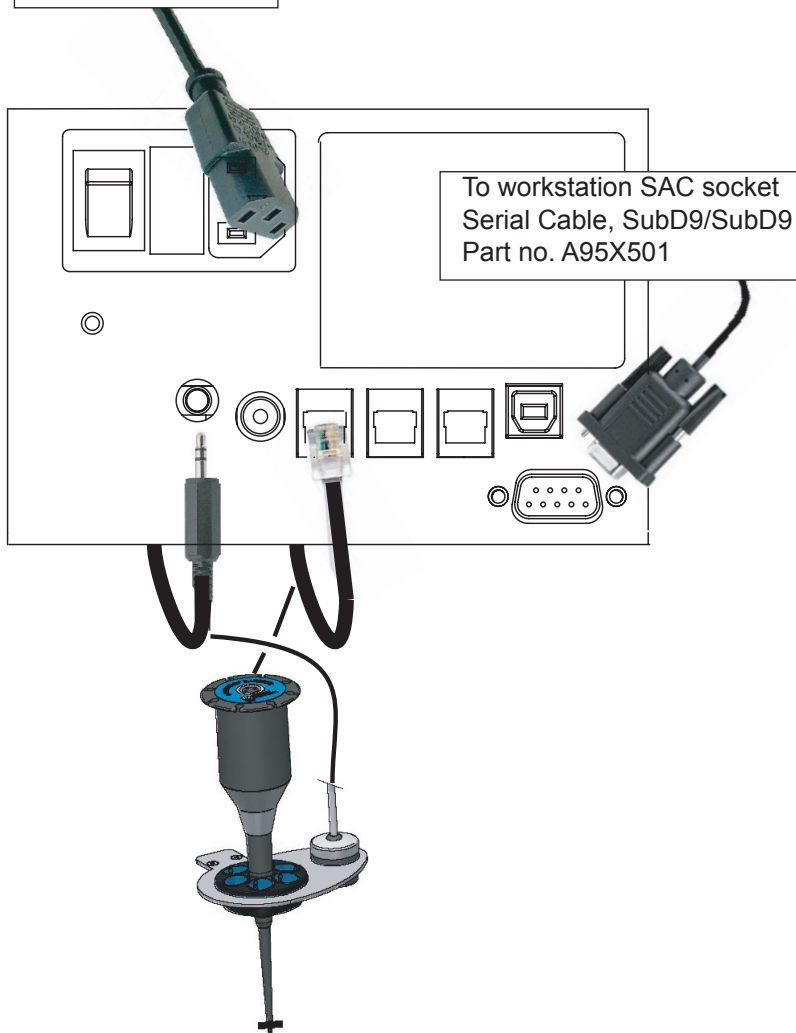
- Use cable A95A126:
Electrodes with BNC plugs or screw cap electrodes + cable A94L114
- Use cable A95A127:
Electrodes with banana plugs or screw cap electrodes + cable A94L111
- Use cable A95A128:
Temperature sensors with Cinch plug

Delicately tip the sample changer onto the side.
While doing this operation, do not pick up the instrument by the electrode holder or by the arm.
Slot the stirrer and beaker detector cables in holders **(a)**.



Put the sample changer back in place. While doing this operation, take care to not pinch the stirrer and beaker detector cables.

To a mains socket.
Mains cable,




To workstation SAC socket
Serial Cable, SubD9/SubD9
Part no. A95X501

Assembling option accessories

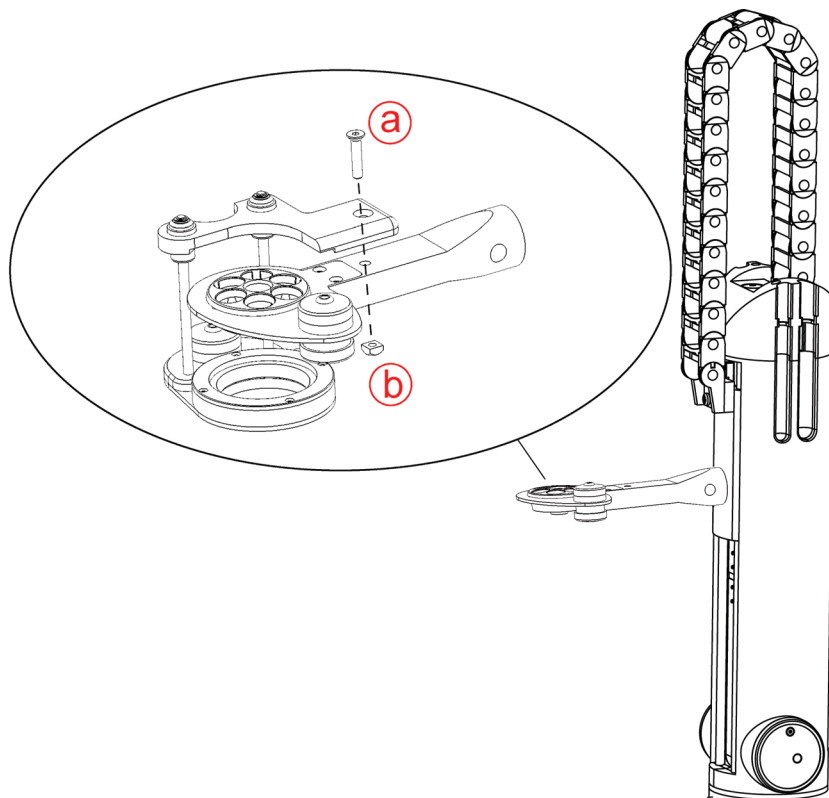
Dynamic rinse module

The Dynamic rinse module is used for shower rinsing and emptying operations. It consists of a pump assembly (two membrane pumps, one for rinsing and the other for emptying), a shower head, a suction tip and silicon tubings.

Switch on the sample changer and move the arm at its upmost position: press key  (see chapter "Presentation - Keypad", key (6)).

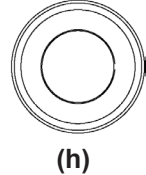
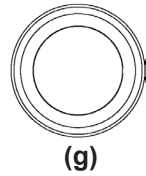
Switch off the sample changer.

Fix the module to the arm using the bolt (a), nut (b) and Allen key supplied.

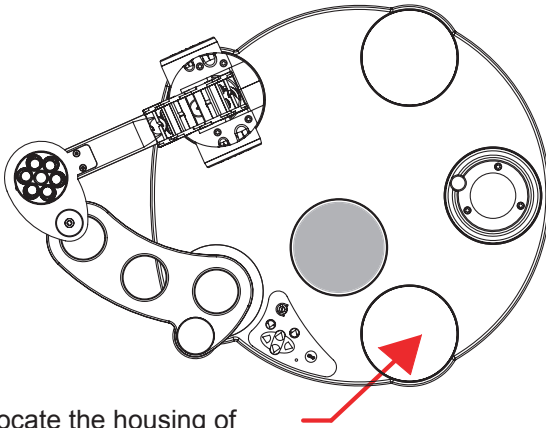


Fix the shower head skirt **(g)** or **(h)** to the base of the module. The use of a **(g)** or **(h)** shower head skirt depends on the diameter of the beaker used (see table below).

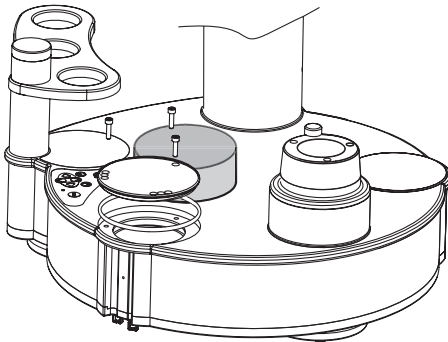
Beakers	Use of parts (g) , (h)
400 ml tall form, d = 70 mm	(g)
250 ml low form, d = 70 mm	(g)
250 ml tall form, d = 60 mm	(g)
180 ml PP, d = 54 mm	(g)
150 ml tall form, d = 60 mm	(g)
150 ml low form, d = 62 mm	(g)
40-100 ml PP, d = 60 mm	(g)
100 ml low form, d = 48 mm	(h)
50 ml low form, d = 44 mm	(h)
22-45 ml, d = 44 mm	(h)
10-22 ml, d = 44 mm	(h)



If not already done,
remove the turntable.

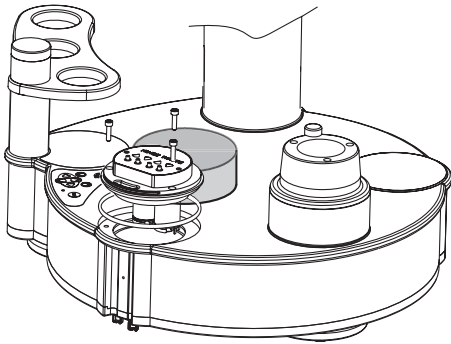
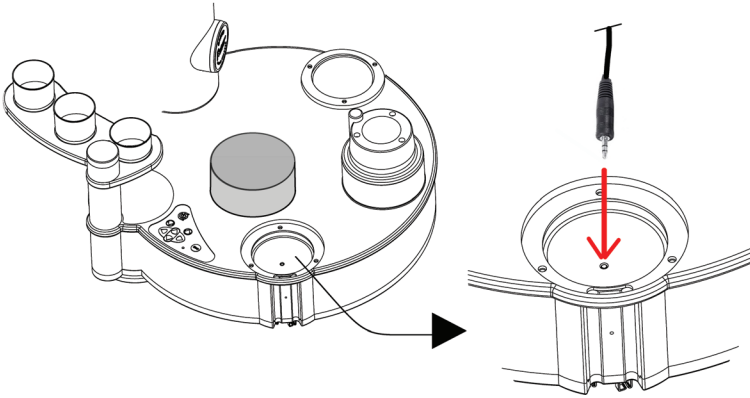


Locate the housing of
the pump assembly.

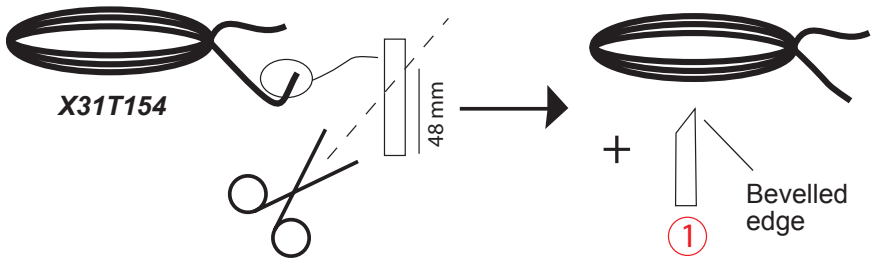


Remove the protection sticker.
Unscrew the 3 screws then
remove the cover plate. Use
the Allen key supplied.

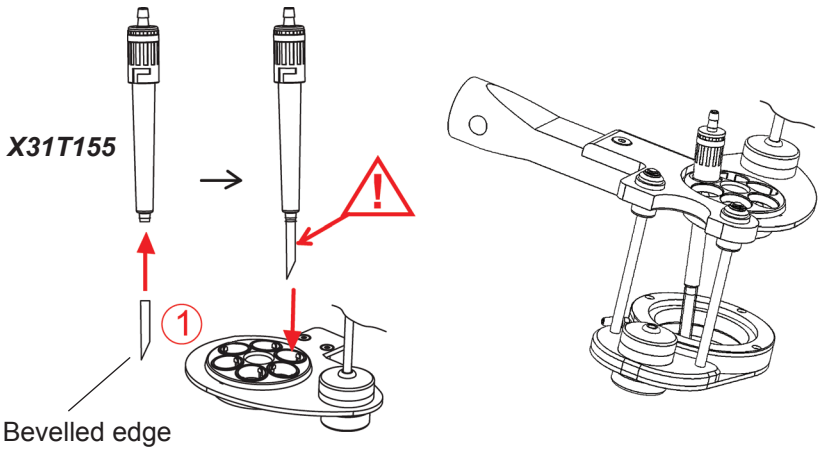
Connect the pump cable Jack plug to the corresponding socket.



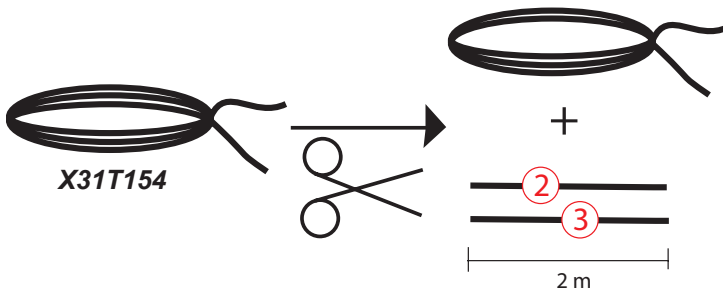
Insert the pump assembly and fix it in place with the 3 screws. Use the Allen key supplied.



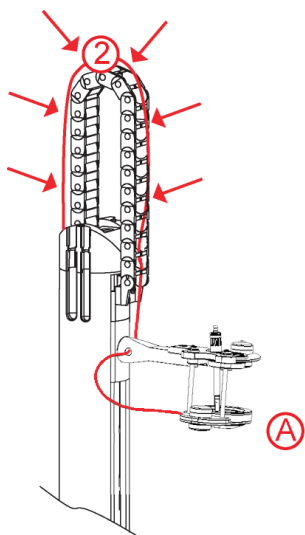
Cut a piece ① of 48 mm from the silicon tubing X31T154.



Pay attention to the stirrer rod and propeller when setting up the suction tip X31T155. If necessary, direct the end of the tubing ①.



Cut 2 pieces ② and ③ of 2 m each from the silicon tubing X31T154.

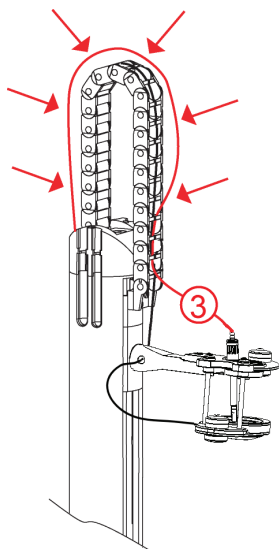


Mount one end of tubing (2) on the metal rod of the shower head.

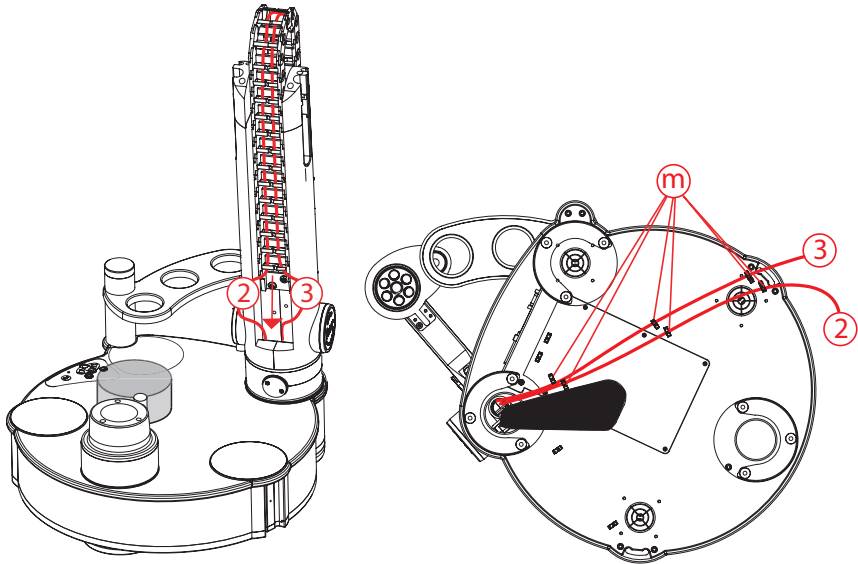
Engage the tubing in the cable carrier by simple pressure on each link.

Important

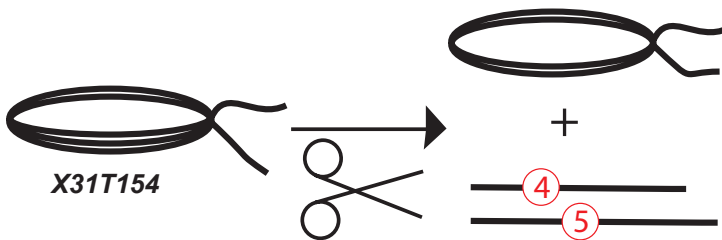
It is important to check at this stage that the tubing slides well when moving up part (A), this particularly after having set up all tubings and wires. To move up part (A), push up under this part.



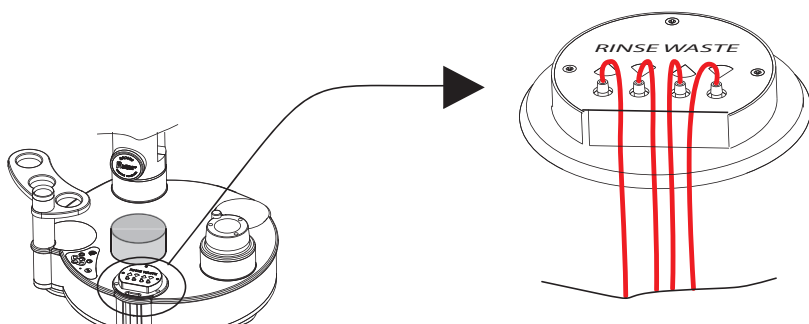
Mount one end of tubing (3) on the head of the suction tip X31T155. Engage the tubing in the cable carrier from the 3rd chain link.



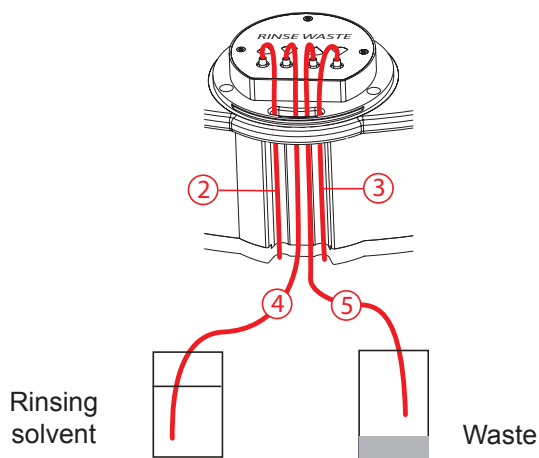
Insert tubings ② and ③ in the opening of the arm then slip these tubings under the sample changer in order to present them at the rinsing/draining pumps. The tubings must pass on the side of the black cable guide part. Delicately tip the sample changer onto the side to facilitate this operation. Slot the tubings in holders (m).



Cut 2 pieces ④ and ⑤ from the silicon tubing X31T154. ④ is the pump/rinsing solvent can tubing and ⑤ is the pump/waste tubing. Determine the correct length of these tubings according to your needs.



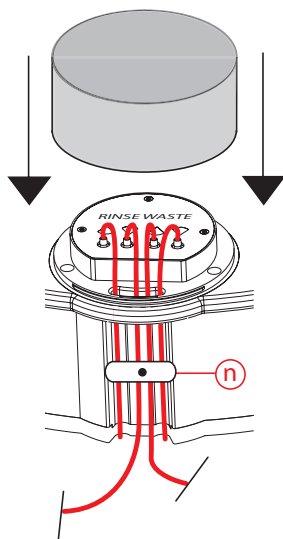
Adjust the length of the tubings to preserve a small loop after connection.



Mount tubing ② on the outlet of the rinsing pump and tubing ③ on the inlet draining pump.

Mount one end of tubing ④ on the inlet of rinsing pump and dip the other end in a can filled with rinsing solvent (demineralised water for example).

Mount one end of tubing ⑤ on the outlet of draining pump and dip the other end into a waste.



Cover the pump assembly with the protection lid provided.

Fix the part (n) using the screw and Allen key 2.5 mm provided.

This part maintains the tubings in place.

Warning!

The pump body is made of polypropylene. So use the pump only with reagents compatible with polypropylene.

You can aspire precipitates with the pump to the only condition that this precipitate is resulting from a chemical reaction and that the particle size does not exceed 125 μ m.

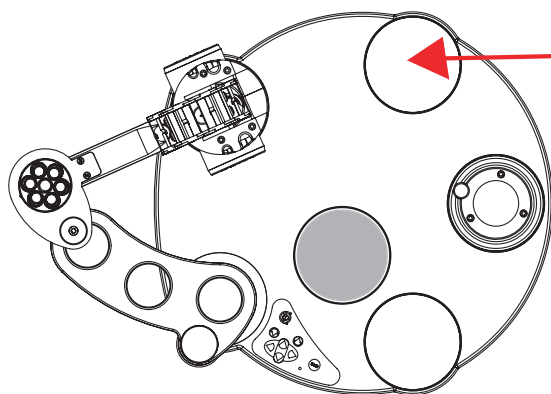
Moreover, it is recommended to carry out several cycles of rinsing in the event of samples charged in particles.

Reagent addition module

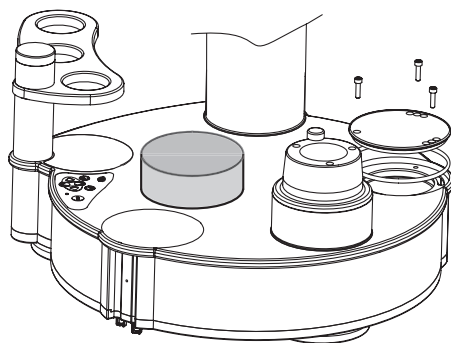
A reagent addition module can be mounted on the SAC850 or SAC950 sample changer. This peristaltic pump is used to add reagent as be part of a sample preparation. Volumes are added with an accuracy around 1%.

A reagent addition module consists of a peristaltic pump assembly, a reagent addition tip, silicon and Maprene[®] tubings.

If not already done, remove the turntable.

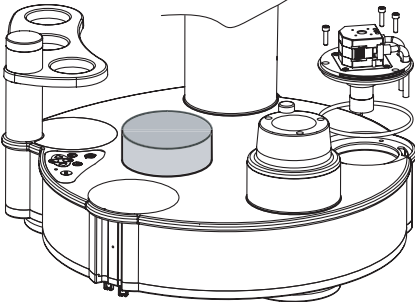
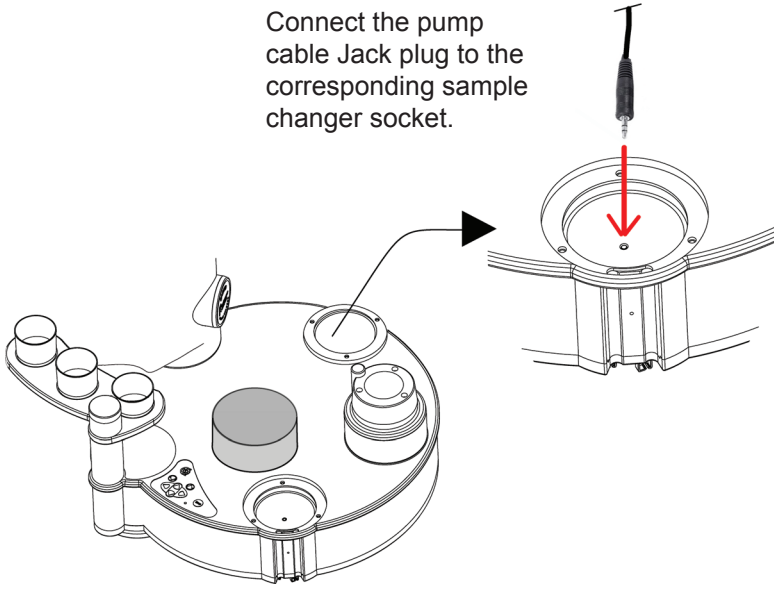


Locate the housing of peristaltic pump.

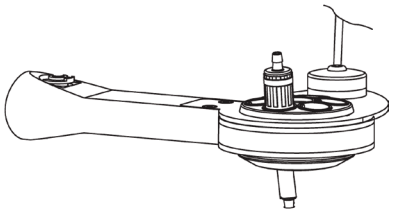
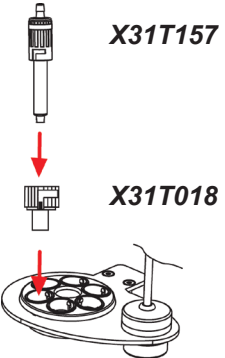


Remove the protection sticker, Unscrew the 3 screws then remove the cover plate. Use the Allen key supplied.

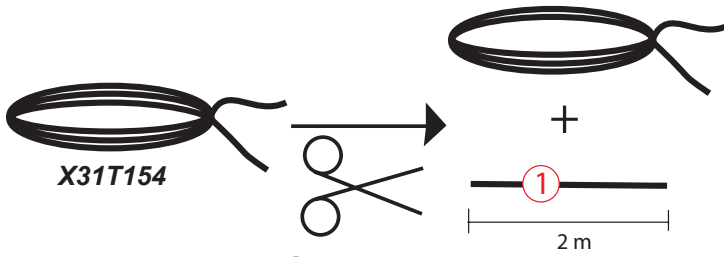
Connect the pump cable Jack plug to the corresponding sample changer socket.



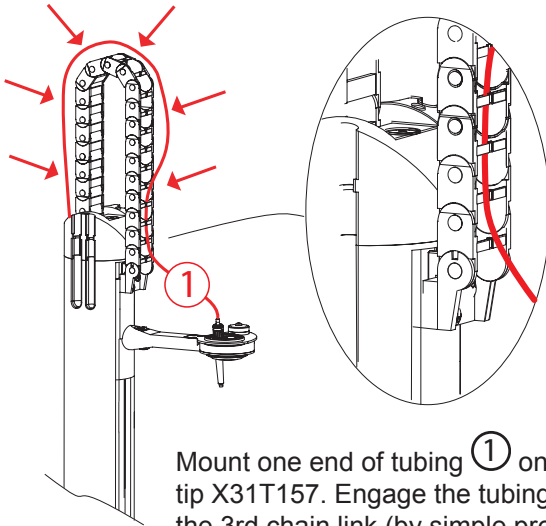
Insert the peristaltic pump assembly and fix it in place with the 3 screws. Use the Allen key supplied.



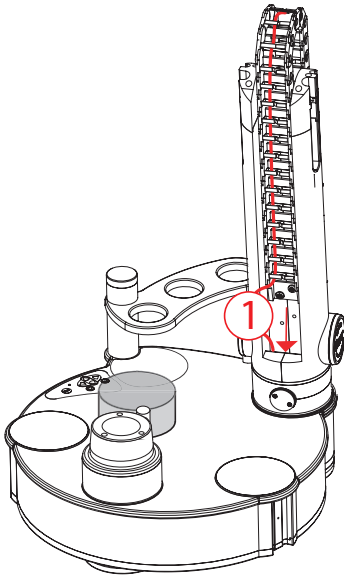
Set up the addition tip, part no. X31T157.



Cut a piece of 2 m long ① in the silicon tubing X31T154.



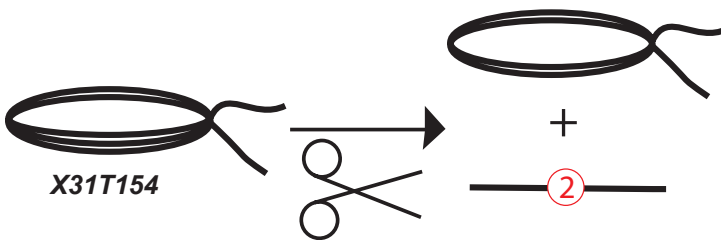
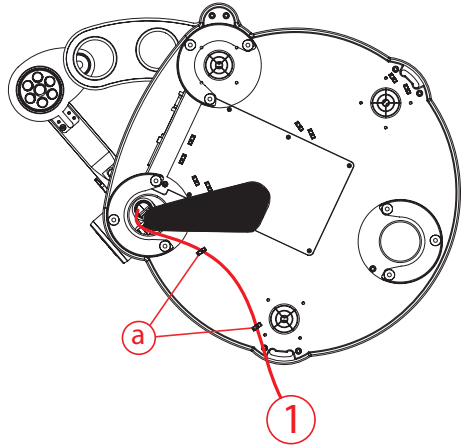
Mount one end of tubing ① on the head of the addition tip X31T157. Engage the tubing in the cable carrier from the 3rd chain link (by simple pressure on each link).



Insert tubing ① in the opening of the arm then slip this tubing under the sample changer in order to present it at the peristaltic pump. The tubing must pass on the side of the black cable guide part.

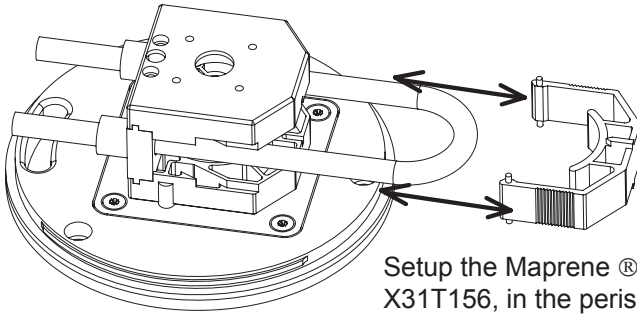
Delicately tip the sample changer onto the side to facilitate this operation.

Slot the tubings in holders (a).

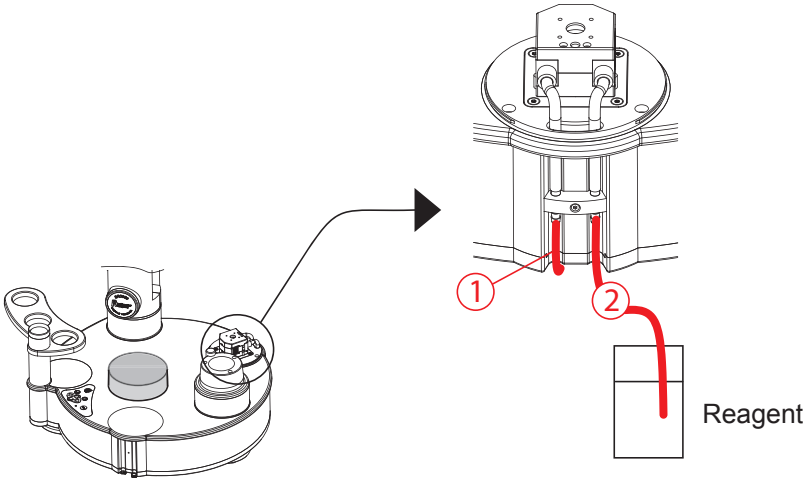


Cut a piece ② from the silicon tubing X31T154.

② is the pump/reagent flask tubing. Determine the correct length of this tubing according to your needs.

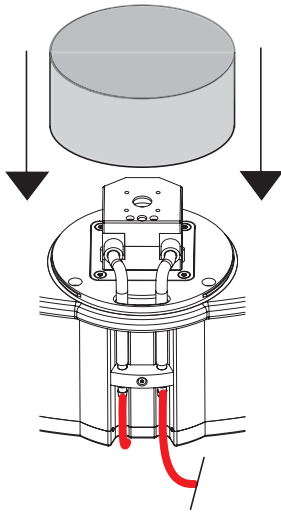


Setup the Maprene[®] tubing, part no. X31T156, in the peristaltic pump.

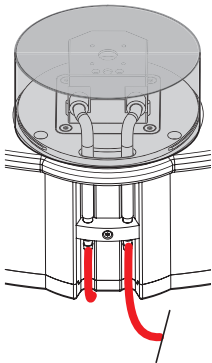


Mount tubing ① on the outlet of the peristaltic pump.

Mount one end of tubing ② on the inlet of peristaltic pump and dip the other end in the reagent flask.




Cover the pump with the protection lid provided.



Beaker cover module

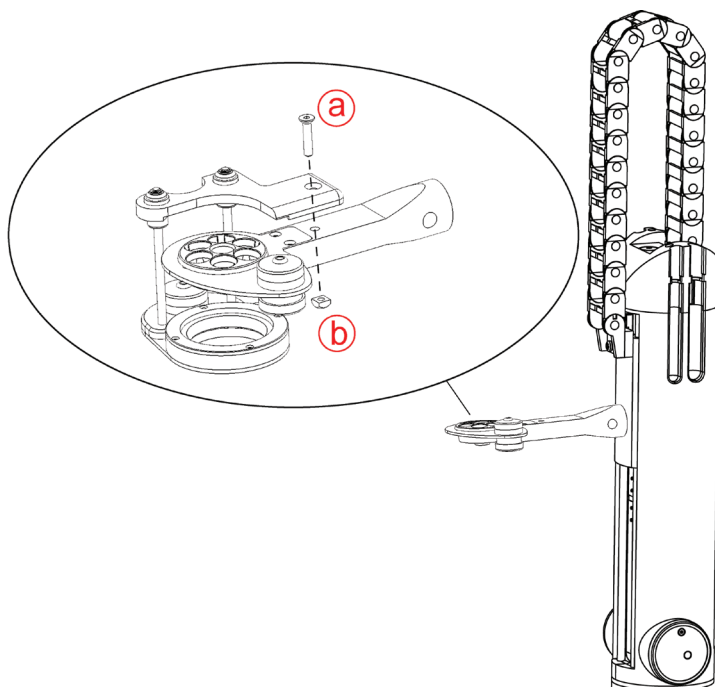
The Beaker cover module for SAC950, X16T016 is used to remove metal covers from any beakers (*) of the SAC950 turntable. The Beaker cover module cannot work without the Dynamic rinse module.

Another application of the Beaker cover module is the automatic detection (by the beaker detector) of beakers with solid samples, powder samples or liquid samples with heights of liquid lower than the limit of detection (10 mm).

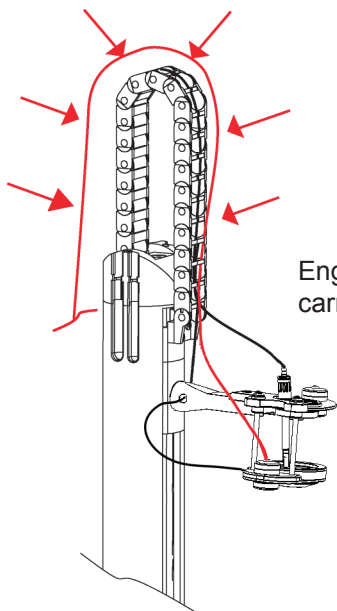
Switch on the sample changer and move the arm at its upmost position:
press key  (see chapter "Presentation - Keypad", key **(6)**).

Switch off the sample changer.

Fix the module to the arm using the bolt (a), nut (b) and Allen key supplied.



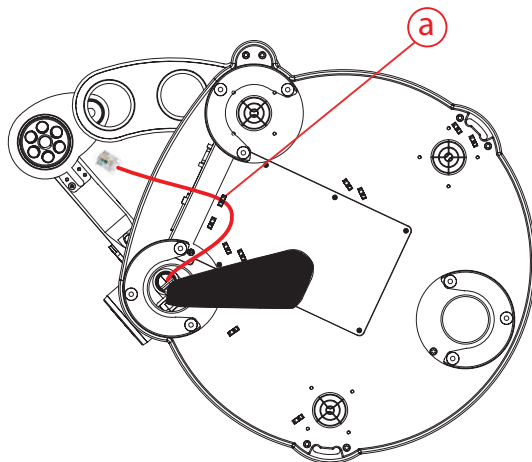
(*) Metal covers are listed in chapter "Accessories", table "Beaker and beaker covers".



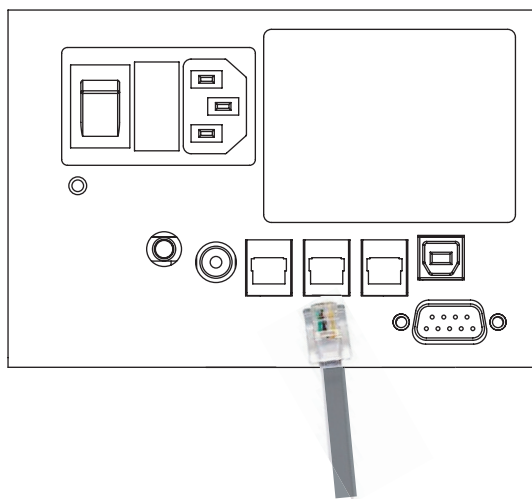
Engage the electromagnet cable in the cable carrier from the 3rd chain link.

Delicately tip the sample changer onto the side. While doing this operation, do not pick up the instrument by the electrode holder or by the arm.

Slot the electromagnet cable in holder **(a)**.



Put the sample changer back in place. While doing this operation, take care to not pinch the cables and pump tubings.



Connect the electromagnetic cable to the corresponding socket of the SACxxx connection panel.

4. Use

Switching on

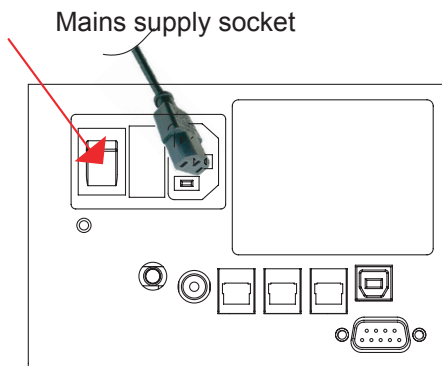
1. Connect the mains socket of the SAC 850/SAC950 sample changer and the workstation (TIMxxx or IONxxx) to the mains supply using the 3-lead power cord provided.
In the USA or Canada, use a UL listed power cord only.

Important:

The sample changer and the workstation must be connected to an earthed mains socket for safety reasons. Efficient grounding is essential for reliable measurements and security.

The power supply connector on the rear panel must remain accessible and close to the user (2 m maximum) so that you can quickly disconnect the cables in case of emergency.

2. Switch on the sample changer (O/I power switch on the rear panel set to "I", see below) then the workstation.



The sample changer runs its autotest routine:

- Lifts/lowers the arm to search for the arm upmost position,
- Starts the turntable rotation motor (SAC850 and SAC950) and start the arm rotation motor (SAC950 only) to search for reference positions of both elements.
- Dips the electrodes into the Park beaker. If no Park beaker detected, leaves the electrodes above the Park beaker (Service position).

Running sequence with a workstation

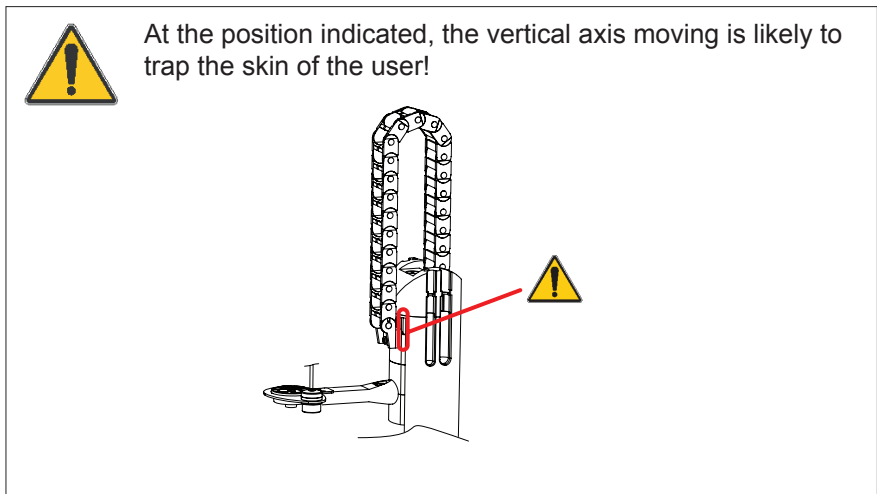
After having started a sequence from the workstation or TitraMaster 85, the sample changer performs the following operations if 1 to 9 dynamic rinses and if 2 static rinses R1 and R2 have been programmed (*):

1. Moves to Park beaker (**), and starts rinsing dynamically the electrodes. At the end, the Park beaker is left empty.
See paragraph "Dynamic rinsing".
2. Moves to R1 beaker (***), dips the electrodes into that beaker and rinses under stirring during a preset delay. *See paragraph "Stirring".*
3. Moves to R2 beaker (***), dips the electrodes into that beaker and rinses under stirring during a preset delay. *See paragraph "Stirring".*
4. Moves to beaker no.1, prepares sample/standard running the sample preparation number attached to the method. During this time, the workstation displays the message "Sample changer processing in beaker 1" message.
See paragraph "Sample preparation".
5. At the end of analysis, starts rinsing dynamically the electrodes. At the end, the beaker no.1 is left nearly empty with a small amount of

solvent that was used to flush the electrodes and delivery tips.

- (*) The number of static rinses (0, 1 (R1) or 2 (R1 and R2)), the duration of static rinses and the number of dynamic rinses (0 to 9) are programmed in the Setup > Configuration parameters of the workstation (refer to the Reference Manual of the workstation used).
- (**) A dynamic rinse before first beaker analysis can occur in the Park or in the R1 beaker if 0 or 1 static rinse has been programmed. Selection between Park and R1 is made in the Setup > Configuration parameters of the workstation (refer to the Reference Manual of the workstation used).
- (***) R1: Static rinse beaker no.1. R2: Static rinse beaker no.2. The position of these beakers is given in chapter "Setting up - Placing beakers".

6. Repeats steps 2 and 3.
7. Dips the electrodes in beaker no. 2, prepares sample/standard running the sample preparation number attached to the method.
8. At end of the sequence (end of analysis in the last beaker of the sequence):
 - starts rinsing dynamically the electrodes,
 - repeats steps 2 and 3,
 - moves the electrodes above the Park beaker,
 - left the electrodes as is or dip the electrodes into the Park beaker depending on the selection made in the Setup > Configuration parameters of the workstation (refer to the Reference Manual of the workstation used).



Dynamic rinsing

1 to 9 dynamic rinses (or shower rinse/emptying operations) can be performed between 2 sample runs. To improve rinsing efficiency and to save on rinse solution, the rinse process is a pulsed rather than a continuous operation.

A dynamic rinse is carried out in the just analysed sample beaker or in the Park beaker (*). At the start of a sequence, the dynamic rinse can be performed either in the Park beaker or in R2 (static rinse no.2) beaker (*). Dynamic rinses never take place in calibration beakers. At the end of a calibration beaker analysis, the dynamic rinse is performed in the Park or R2 (static rinse no.2) beaker (*).

A dynamic rinse performed in a Park or Rinse beaker consists of the following operations:

1. The electrodes are positioned above the Park or Rinse beaker.
2. The electrodes are dipped into the beaker. The beaker is emptied to a waste in the same time. At the end, the electrodes are located in the emptied beaker at their downmost position.
3. The electrodes are washed with rinse solution (usually demineralised water) then start to move up under rinsing. At the end, the electrodes are located above a beaker filled with rinse solution and some remaining impurities.

Steps **2** and **3** can be repeated up to 8 times as up to 9 dynamic rinses can be programmed. Steps **2** and **3** are performed under stirring.

- (*) Depending on the selection made in the Setup > Configuration parameters of the workstation (refer to the Reference Manual of the workstation used).

A dynamic rinse performed in a Sample beaker consists of the following operations:

1. The electrodes are dipped into the Sample beaker. The beaker is emptied to a waste in the same time. At the end, the electrodes are located in the emptied beaker at their downmost position.
2. The electrodes move up and are washed in the same time with rinse solution (usually demineralised water). At the end, the electrodes are located above a beaker filled with rinse solution and some remaining impurities.
3. The sample beaker is emptied to a waste.
4. A last rinsing of the electrodes and delivery tips is carried out. At the end, the electrodes are located above a nearly emptied beaker containing a little solvent that was used to flush the electrodes and delivery tips.

Steps **1** to **3** can be repeated up to 8 times as up to 9 dynamic rinses can be programmed. Steps **1** to **3** are performed under stirring.

Stirring

A magnetic and a propeller stirrer can be used to stir the solutions. When the propeller stirrer is connected (see chapter "Setting up"), it will be automatically used in place of the built-in magnetic stirrer. The magnetic or propeller stirrer speed is set in the Cell menu of the workstation (value adjustable between 100 and 1100 rpm by steps of 50 rpm).

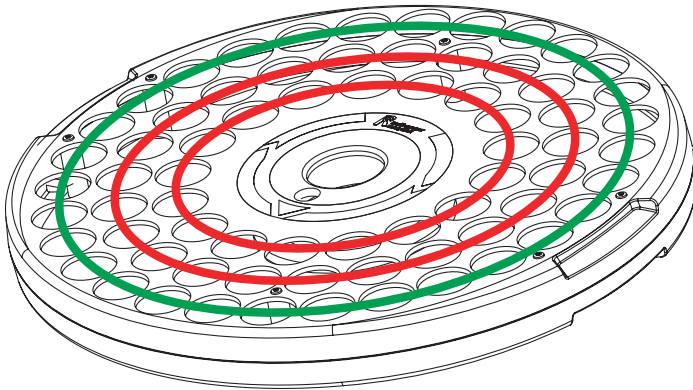
Dynamic and static rinses are performed under stirring.

Magnetic stirring with a SAC950

When using a 2 or 3-radii turntable with a SAC950, you must use a propeller stirrer to stir the solutions that are placed on the smallest row (2-radii turntable) or on the 2 smallest rows (3-radii turntable).

Green positions : magnetic and propeller stirring possible

Red positions : propeller stirring only



Sample preparation

A SAC850 or SAC950 can run up to 10 different sample preparations in a sequence. Sample preparations are created and edited from TitraMaster 85 PC software.

Each element of a sample changer sequence is associated to a sample preparation. A sample preparation is a succession of up to 10 elementary actions required by the sample changer to prepare each sample beakers to be run thereafter.

On running a sequence, the workstation sends to the sample changer all sample preparations to be runned for the sequence. The compatibility between the sample preparation and the sample changer used is tested and an error message is displayed in case of failure (example: use of a peristaltic pump that is not installed yet).

See *TitraMaster 85 on line help, topics "Handling sample preparations"*.

Important:

When starting a sample preparation, if you have a solid or powder sample in the beaker or if you have, for some beakers, less liquid than a minimum height limit (see chapter "Accessories - Beakers"), then you must disable the "beaker presence detection" option before running the sequence. If you keep that option activated, then the sample changer will not prepare the sample in that beaker and will jump to the next beaker considering that the current position is empty.

To disable the "beaker presence detection" option in TitraMaster 85, see TitraMaster 85 on line help, topics "Editing an application - Configuration".

With a SAC950 sample changer, you can detect beakers containing solid samples, powder samples or liquid samples with heights of liquid lower than the limit of detection (10 mm). In that case, you must install the Beaker cover module on the sample changer and cover the beakers with the appropriate metal covers (see chapter "Accessories", table "Beakers and beaker covers").

Actions that can be done during a sample preparation:

Control peristaltic pump.

Start/stop electrode rinsing.

Start/stop beaker emptying.

Control stirring.

Set delay.

Control stirrer.

TTL command (wait for a TTL IN for a preset time).

5. Troubleshooting

A number of tests are automatically performed when the sample changer is switched on and during calibration and sample batch measurements. The errors reported can be divided in two groups:

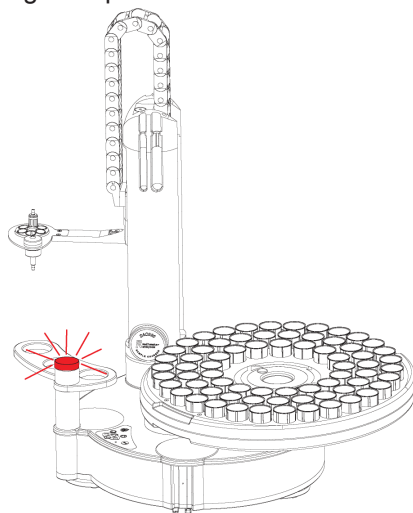
- Autotest errors occurring on switching on the sample changer and errors occurring while operating the sample changer alone (manual mode without workstation).
- Errors displayed by the workstation.

Autotest and manual mode errors

If an error is detected, the sample changer stops the current action and the status lamp lights in red.

Switch off the sample changer, identify the causes of the error (generally, arm or turntable blocked or arm or turntable movement obstructed), correct the error then switch on the instrument.

It should be noted that when no movement is in progress, the simple fact of manually moving the arm or the turntable is interpreted by the apparatus like a movement forced resulting in an error with a lit red status lamp.



Important: Never, at any time during setup or use of the instrument, manually move the arm or turntable even if blocked. Manual movement may cause damage to the motor axis, which in turn can cause excessive play resulting in positioning errors.

Electrode head not centered correctly above the beaker

Adjust the reference position of the tray and arm rotations.

See chapter 6 "Maintenance", paragraph "Adjusting the mechanics reference positions".

Errors displayed by the workstation

Messages	Error/Action
Communication failure	<p>Data transmission between the sample changer and the workstation cannot be performed properly.</p> <p>Check the cable connections and make sure that the sample changer is switched on and connected to the workstation via the RS232 serial cable.</p> <p>Press the workstation key 3 or Stop and restart the sequence.</p> <p>It is not possible to continue the sequence from the point it stopped.</p>

Messages	Error/Action
<p>Missing beaker</p>	<p>Beaker not detected. Solve the problem and restart the sequence from the beaker it stopped (key 1 Resume analysis).</p> <p>Warning! <i>Do not change the turntable before restarting the sequence from the beaker it stopped (key1) or before restarting the sequence from the next beaker (key 2). The sample changer identifies a turntable only when a new sequence is initialized (equivalent to a keystroke on 3 End of sequence followed by 1 Run sequence).</i></p> <p>Causes:</p> <ol style="list-style-type: none"> 1. There is no beaker at the dedicated position and/or there is not enough liquid in the beaker and the beaker cannot be detected. <i>Refer to chapter "Accessories - Beaker" to know the minimum height of liquid required for detection.</i> Add solution in the beaker or deactivate the beaker automatic detection by clearing the option "Beaker detection" in TitraMaster 85 (refer to TitraMaster 85 on-line help, topics "Editing an application - Configuration"). 2. Using a level, check that the sample changer is installed on a flat and horizontal bench surface. 3. If points 1 and 2 have failed, adjust the beaker detector position (see chapter 6 "Maintenance").

Messages	Error/Action
<p>SAC arm obstructed or Turntable blocked</p>	<p>The arm or turntable has been blocked and cannot function properly. Remove the obstruction and press Resume analysis (key 1) to continue the sequence from the point it stopped.</p> <p>Warning! <i>Do not change the tray before restarting the sequence from the beaker it stopped (key1) or before restarting the sequence from the next beaker (key 2). The sample changer identifies a turntable only when a new sequence is initialized (equivalent to a keystroke on 3 End of sequence followed by 1 Run sequence).</i></p>
<p>Tray missing</p>	<p>On starting a sequence, the sample changer cannot read the RFID tag of the turntable. Check that a turntable is correctly mounted on the sample changer. Check the model of turntable used and see chapter "Accessories".</p> <p>In particular, note that a SAC850 turntable can be used on a SAC950 but a SAC950 turntable cannot be used on a SAC850. Solve the problem then restart the sequence.</p>
<p>SAC switch Off/On or ERR#32</p>	<p>Either the data transmission between sample changer and the workstation cannot be performed properly, in which case you should check the cable connections, or the measurement stopped due to a movement error. End the sequence by pressing key Stop on the sample changer keypad or key Stop of the workstation, and check that nothing is obstructing sample changer movements.</p>

Messages	Error/Action
SAC option missing	<p>The SAC option addressed is missing and not installed on the sample changer.</p> <p>Examples:</p> <p>1) Dynamic rinses are programmed in the sequence and no dynamic rinse module is installed and the sample changer. Review the Setup > Configuration parameters and/or install missing pump (in particular, check the electrical connection between the pump and the sample changer).</p> <p>2) A reagent addition is programmed in the sample preparation and no peristaltic pump is installed on the sample changer. Review the Edit sequence parameters, parameter Sample preparation no. and/or install missing peristaltic pump (in particular, check the electrical connection between the pump and the sample changer). <i>For TitraMaster 85 users only, check and, if necessary, edit the sample preparation routine.</i></p>
Wrong type	<p>The sample changer connected does not correspond to the one programmed in the Setup > Configuration menu.</p> <p>Example:</p> <p>A SAC850 is connected to the workstation, SAC socket and you have declared a SAC950 in the Setup > Configuration menu. Review the Setup > Configuration parameters and/or connect the correct model of sample changer to the SAC socket of the workstation.</p>

6. Maintenance

Cleaning

The sample changer requires minimum maintenance. The exterior surface should be cleaned regularly with tepid water or a mild detergent and wiped dry with a soft damp cloth.

Transporting the instrument

Always use the packaging supplied by the manufacturer.

IMPORTANT!

Remove the tray before transporting the instrument.

Never pick-up or carry the instrument by the electrode head holder or by the arm.

Servicing

DO NOT ATTEMPT TO SERVICE THIS PRODUCT YOURSELF, except as noted in this User's Guide.

To ensure optimum maintenance, it is recommended to have the instrument serviced at least once a year by a qualified Radiometer Analytical service technician. Please contact your service representative at the address given below:

RADIOMETER ANALYTICAL SAS
72, rue d'Alsace
69627 Villeurbanne CEDEX - France
Tel.: +33 (0) 4 78 03 38 38
Fax: +33 (0) 4 78 03 38 27
E-mail: radiometer@nalytical.com

or your local service representative:

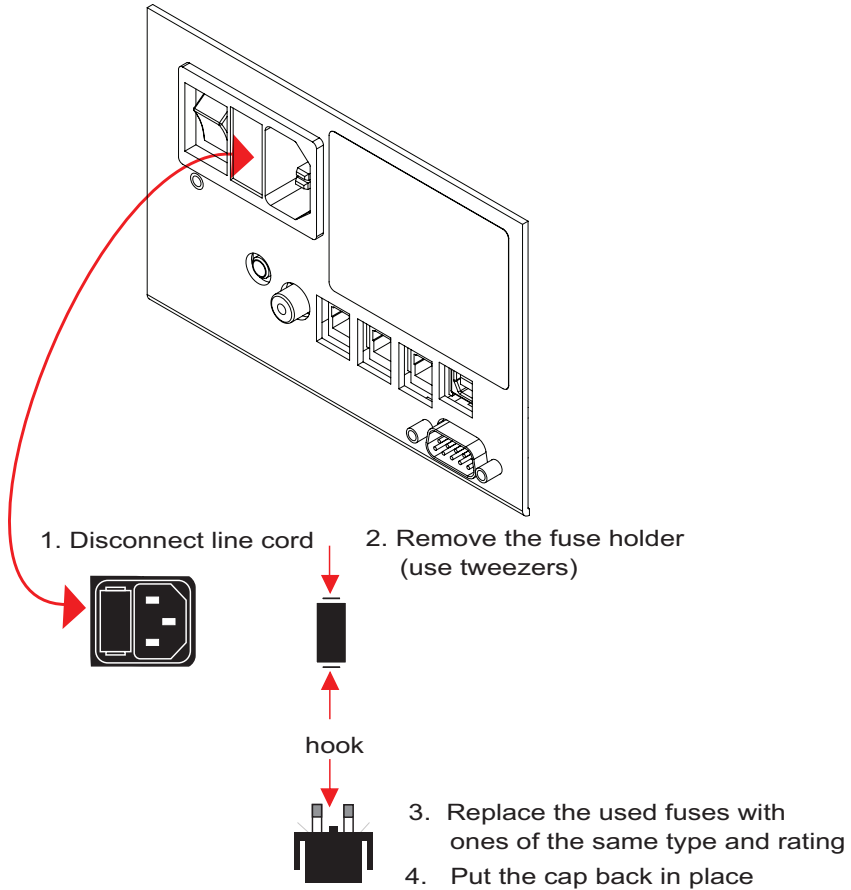
Replacing the fuses

For continued protection replace the fuse with one of a high interrupting capacity, same type and rating:

2 x fuses, slow blow, T2.5A L250V (5 x 20 mm), part no. X16T017.

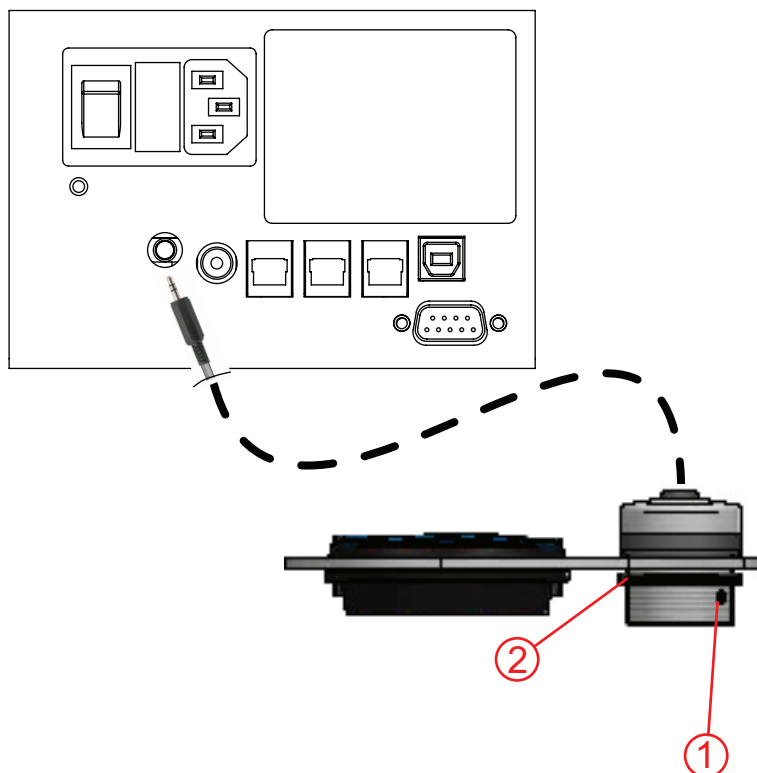
To replace the fuses:

Locate the fuse housing on the rear panel of the sample changer.



Adjusting the beaker detector position

1. Switch off the sample changer
2. Unplug the beaker detector.



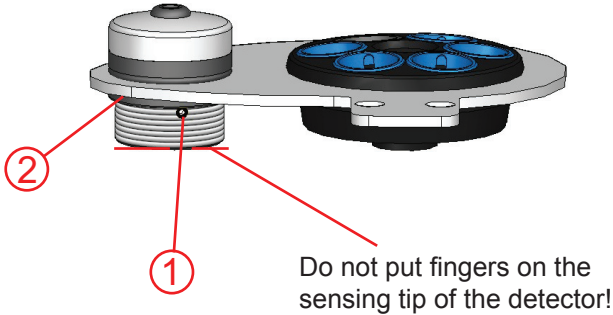
3. Switch on the sample changer. Wait for the end of instrument initialization. The electrode/beaker detector holder is now above the Park beaker at the upmost position (Service position).
4. Pour a 10 mm height of water in the Park beaker.
5. Connect the beaker detector to the sample changer.

6. Press successively and calmly on keys ,  and  and .

Warning!

Take care to press these keys in the order indicated!

7. Check the colour of the status lamp:
 - Blue (difficult to reach): optimal adjustment, detection
 - Purple: correct adjustment, detection
 - Red: wrong adjustment.
8. If relevant, adjust the position of the beaker detector:
 - using the Allen key supplied with the sample changer, screw or unscrew the side screw (1),
 - and/or unscrew the ring (2), rotate the detector and screw ring (2).
 - check the colour of the status lamp that must turn to purple or blue.



Note: In case of problems, it is recommended to turn the detector in order to direct the side screw (1) towards the back of the instrument then to screw/unscrew the side screw (1).

9. Once the adjustment is done, leave the procedure by pressing on








Adjusting the mechanics reference positions

1. Switch off the sample changer.
2. Check the connection of the Ultrasonic transducer plug (3.5 mm jack stereo) to the 'U.SENSOR' socket on the rear panel of the instrument.
3. Place a beaker on **Park** and, in the case of a SAC950, place another beaker on **position 1**. See chapter "Setting up", paragraph "Placing beakers" for more information.
4. Pour a 10 mm height of water in these 2 beakers.
IMPORTANT: The beakers and water must be clean.

Hints:

- To facilitate the adjustment operation, we recommend you to mount the stirrer and one/two electrodes on the electrode head.
 - Pay attention to center correctly the beakers, use blotting paper to eliminate any play of the beaker in its location.
5. Switch on the sample changer. Wait for the end of instrument initialization. The electrode/beaker detector holder is now above the Park beaker at the upmost position (Service position).

6. Press successively and calmly on keys , ,  and  and .

Warning!

Take care to press these keys in the order indicated!


7. For a SAC850:
The electrode head moves from Service down to a position above the Park beaker. The turntable starts rotating by small steps clockwise.

For a SAC950:

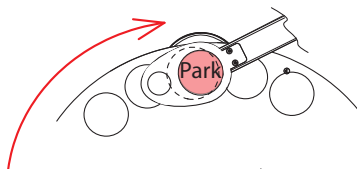
The electrode head moves from Service down to a position above the Park beaker. The arm starts rotating by small steps anti-clockwise.

In both cases, during this phase, evaluate when the stirrer and electrodes are accurately centered above the Park beaker.

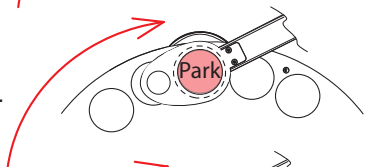
When OK (see the figures on the next page for a SAC850), confirm the


position by pressing key .

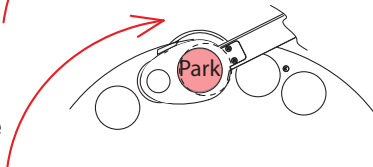
Too early. Wait a little.



Adjustment correct. Press key .



Too late. Press key , switch off the sample changer then restart the procedure from step 5.



8. For a SAC850:

The adjustment is complete and the electrodes are dipped into the Park beaker.

For a SAC950:

The electrode head moves to a position above sample beaker no.1. The turntable starts rotating clockwise by small steps.

During this phase, evaluate when the stirrer and electrodes are accurately centered above the Sample beaker no.1.

When OK, confirm the position by pressing key .

The adjustment is complete and the electrodes are dipped into the Park beaker.

7. Accessories

Dynamic rinse module for SACxxx

Dynamic rinse/waste module for SACxxx, part no. X91T107 comprising:

- | | | |
|---|---------|---|
| 1 | X31T166 | Shower head for SACxxx |
| 1 | X16T019 | Pump membrane assembly for SACxxx |
| 1 | X31T154 | Silicon crystal tube, d=4/7 mm, L= 15 m |
| 1 | | OI-Tri, Dynamic rinse module for SACxxx |

Reagent addition module for SACxxx

Reagent addition module for SACxxx, part no. X91T096 comprising:

- | | | |
|---|---------|--|
| 1 | X16T020 | Peristaltic pump assembly for SACxxx |
| 1 | X31T156 | Maprene ® tube, d=4.8/8 mm, L= 0.3 m |
| 1 | X31T154 | Silicon crystal tube, d=4/7 mm, L= 15 m |
| 1 | X31T157 | Addition Tip |
| 1 | | OI-Tri, Reagent addition module for SACxxx |

Cables for SACxxx

Cables for SACxxx:

- | | | |
|---|---------|---|
| 1 | A95X501 | Serial Cable, SubD9/SubD9 |
| 2 | X16T017 | Fuse, slow blow, 2.5A (5x20mm) |
| 2 | A95A126 | Cable, BNC/1m/BNC with Adapter BNC f/f |
| 1 | A95A127 | Cable, Banana-m/1m/Banana-m with Adapter Banana f/f |
| 1 | A95A128 | Cable, CINCH-f/1m/CINCH-m |

Turntables (SAC850 and SAC950)

Kit 25-position turntable, SAC850, 50 ml glass low form, 22-45 ml & 8-25 ml PP beakers, X91T080 comprising:

- 1 25-position turntable, beakers d= 44 mm
- 1 904-489 Titration Vessel PP, 22-45 ml (50 pcs)

Kit 22-positions, turntable, SAC850, glass 100ml tall form beakers, X91T082 comprising:

- 1 22-position turntable, beakers d= 48 mm

Kit 20-position turntable, SAC850, glass 150ml low form beakers, X91T105 comprising:

- 1 20-position turntable, beakers d= 62 mm

Kit 20-position turntable, SAC850, 40-100 ml PP beakers, X91T084 comprising:

- 1 20-position turntable, beakers d= 60 mm
- 1 904-490 Titration Vessel PP, 40-100 ml (50 pcs)

Kit 20-position turntable, SAC850, GOSSELIN 180 ml PP beakers, X91T086 comprising:

- 1 20-position turntable, beakers d= 54 mm

Kit 18-position turntable, SAC850, glass 250ml tall form beakers, X91T088 comprising:

- 1 18-position turntable, beakers d= 60 mm

Kit 15-position turntable, SAC850, glass 250ml low form beakers, X91T090 comprising:

- 1 15-position turntable, beakers d= 70 mm

Kit 15-position turntable, SAC850, glass 400ml tall form beakers, X91T092 comprising:

- 1 15-position turntable, beakers d= 70 mm

Turntables (SAC950 only)

Kit 70-position turntable, SAC9xx, 50 ml glass low form, 22-45 ml & 8-25 ml PP beakers, X91T081 comprising:

- 1 70-position turntable, beakers d= 44 mm
- 2 904-489 Titration Vessel PP, 22-45 ml (50 pcs)

Kit 42-position turntable, SAC9xx, 100 ml glass tall form beakers, X91T083 comprising:

- 1 42-position turntable, beakers d= 48 mm

Kit 36-position turntable, SAC9xx, glass 150ml low form beakers, X91T106 comprising:

- 1 36-position turntable, beakers d= 62 mm

Kit 36-position turntable, SAC9xx, 150 ml glass tall form, 40-100 ml PP beakers, X91T085 comprising:

- 1 36-position turntable, beakers d= 60 mm
- 1 904-490 Titration Vessel PP, 40-100 ml (50 pcs)

Kit 36-position turntable, SAC9xx, GOSSELIN 180 ml PP beakers, X91T087 comprising:

- 1 36-position turntable, beakers d= 54 mm

Kit 30-position turntable, SAC9xx, 250 ml glass tall form beakers, X91T089 comprising:

- 1 30-position turntable, beakers d= 60 mm


























Kit 25-position turntable, SAC9xx, 250 ml glass low form beakers, X91T091 comprising:

- 1 25-position turntable, beakers d= 70 mm

Kit 25-position turntable, SAC9xx, 400 ml glass tall form beakers, X91T093 comprising:



























- 1 25-position turntable, beakers d= 70 mm

Turntables and beakers (SAC850 and SAC950)

Beaker part no.	Volume min./max.	Turntable kit to be used	Dynamic rinsing - Shower head skirt	Propeller size
400 ml tall form * d = 70 mm	300 - 360 ml	 X91T092 15 positions		18 mm 
250 ml low form * d = 70 mm	130 - 225 ml	 X91T090 15 positions		18 mm 
250 ml tall form * d = 60 mm	180 - 225 ml	 X91T088 18 positions		18 mm 
180 ml Gosselin, d = 54 mm, PP, X31V005 (50pcs)	100 - 160 ml	 X91T086 20 positions		18 mm 
40 - 100 ml PP 904-490 (50 pcs) d = 60 mm	55 - 90 ml	 X91T084 20 positions		18 mm 
150 ml low form * d = 62 mm	80 - 135 ml	 X91T105 20 positions		18 mm 
100 ml tall form * d = 48 mm	50 - 90 ml	 X91T082 22 positions		18 mm 
50 ml low form * d = 44 mm	30 - 45 ml	 X91T080 25 positions		18 mm 
904-489 (50 pcs) d = 44 mm	22 - 45 ml			10 mm 
904-488 (50 pcs) d = 44 mm	10 - 22 ml			

* Standard glass beakers specified in accordance with DIN12331 ISO3819.

Turntables and beakers (SAC950 only)

Beaker part no.	Volume min./max.	Turntable kit to be used	Dynamic rinsing - Shower head skirt	Propeller size
400 ml tall form * d = 70 mm	300 - 360 ml	 X91T093 25 positions		18 mm 
250 ml low form * d = 70 mm	130 - 225 ml	 X91T091 25 positions		18 mm 
250 ml tall form * d = 60 mm	180 - 225 ml	 X91T089 30 positions		18 mm 
180 ml Gosselin, d = 54 mm, PP, X31V005 (50pcs)	100 - 160 ml	 X91T087 36 positions		18 mm 
40 - 100 ml PP 904-490 (50 pcs) d = 60 mm	55 - 90 ml	 X91T085 36 positions		18 mm 
150 ml low form * d = 62 mm	80 - 135 ml	 X91T106 36 positions		18 mm 
100 ml tall form * d = 48 mm	50 - 90 ml	 X91T083 42 positions		18 mm 
50 ml low form * d = 44 mm	30 - 45 ml	 X91T081 70 positions		18 mm 
904-489 (50 pcs) d = 44 mm	22 - 45 ml			10 mm 
904-488 (50 pcs) d = 44 mm	10 - 22 ml			10 mm 

* Standard glass beakers specified in accordance with DIN12331 ISO3819.

Beakers and beaker covers

Beaker type Ø x H (mm)	Volume min./max.	Detection min. height **	Beaker Part no.	Beaker cover***
250 ml tall form * 60 x 120	180 - 225 ml	10 mm (30 ml)		X31T129 (36 pcs.)
180 ml, Gosselin, PP, 54 x 102	100 - 160 ml	10 mm (25 ml)	X31V005 (50 pcs.)	X31T162 (36 pcs.)
150 ml low form * 62 x 81	80 - 135 ml	10 mm (30 ml)		X31T129 (36 pcs.)
40-100 ml, PP 60 x 80	55 - 90 ml	10 mm (30 ml)	904-490 (50 pcs.)	X31T129 (36 pcs.)
100 ml tall form * 48 x 80	50 - 90 ml	10 mm (20 ml)		X31T161 (42 pcs.)
50 ml low form * 42 x 60	30 - 45 ml	10 mm (15 ml)		X31T160 (70 pcs.)
22-45 ml, PP 44 x 70	22 - 45 ml	10 mm (15 ml)	904-489 (50 pcs.)	X31T160 (70 pcs.)
8-25 ml, PP 44 x 70	10 - 22 ml	10 mm (15 ml)	904-488 (50 pcs.)	X31T160 (70 pcs.)

* Standard glass beakers specified in accordance with DIN12331 ISO3819.

** When starting an analysis, if you have less liquid sample than this specified value, then the beaker automatic detection may not work.

When working with a workstation, you must clear the option "Beaker detection" in TitraMaster 85 (refer to the TitraMaster 85, on-line help, topics "Editing an application - Configuration").

You have also the possibility, with a SAC950 and the Beaker cover module, to cover beakers with the suitable metal covers so that the automatic control of the beakers functions.

*** Beaker metal covers that can be uncovered using the beaker cover module, part no. X16T016

Adapters for Bayonet Electrode Head

Bayonet adapters & Delivery tubings for SACxxx:

- | | | |
|---|---------|--|
| 1 | X31T082 | Bayonet Adapter 4xD4362 |
| 1 | X31T015 | Bayonet Adapter, L=120mm FX Elect. |
| 2 | X31T018 | Bayonet Adapter, 12/7,5 mm |
| 2 | 842-302 | Delivery Tubing Long, 3,25m, for burette stand \geq 5 ml |

Spare parts and consumables not included in kits

- | | |
|---------|--|
| X31T130 | Set of propeller, 10 & 18 mm, for 24Vdc Stirrer |
| 842-151 | Delivery Tubing Long, 160 cm, for burette stand $<$ 5 ml |
| A94L336 | CL336 Cable FX/COAX/3m/MAB6 |
| 842-152 | Delivery Tubing Long, 160 cm, B505/510/525 |

8. Technical specifications

Functions

Easy removable turntables, automatic identification of turntable model by RFID:

- SAC850: 1 radius
- SAC950: 1, 2 or 3 radii

Dip rinse and/or reconditioning: 0 to 2 positions.

Service position (electrodes above the park beaker).

Automatic detection of empty position by ultrasonic transducer.

Stirring: magnetic or propeller stirring. Magnetic stirring if propeller stirrer not connected. 0 to 1100 rpm by steps of 50 rpm.

Built-in keypad: lift electrode head up/down, move to next/previous beaker, start/stop dynamic shower rinse, start/stop emptying to waste, start/stop adding a reagent, stop action.

Embedded programmable sample preparation sequences.

Unused electrodes and delivery tips storage: 4 positions Ø16 mm, on the top of the sample changer arm.

Optional modules

Dynamic shower rinse & Beaker emptying: Shower rinse and emptying operations controlled by 2 PTFE membrane/PE body pumps, available in any beaker size. Flow rate: up to 600 ml/min. Pumps can be controlled manually and individually through keypad.

Addition of a reagent with a peristaltic pump to prepare sample. The pump can be controlled manually through keypad. The pump can be programmed individually as part of sample preparation sequence.

Beaker cover option (SAC950 only): Remove beaker covers using an electro-magnet. Covers are disposed beside the sample changer in a dedicated location once removed.

Inputs/outputs

USB-B (Slave) connection to computer for sample preparation programming sequence.

RS232C serial connection to workstation unit.

TTL I/O. Start external peripherals (RJ11 socket). Wait for external signal to continue the sample preparation sequence.

Electro-magnet input for beaker cover option (RJ11 socket).

Propeller stirrer output (RJ11 socket).

Temperature input (CINCH socket) for use as input in a sample preparation sequence.

Ultrasonic transducer input for beaker detection module (Jack socket 3.5 mm).

Casing, keyboard

PETP – PVC and/or PE

Protected against projections – For use in a laboratory environment

Dimensions (H x W x D)

70 x 58 x 68 cm.

Weight

27 kg (SAC950), 26 kg (SAC850).

Power requirements

100-240 Vac - 50-60 Hz. 76 VA

Fuses: 2 mains fuses : slow blow T2.5A L250V (230 V)

Environmental operating conditions

Interior use only

5 to 30°C temperature.

20 to 80% relative humidity.

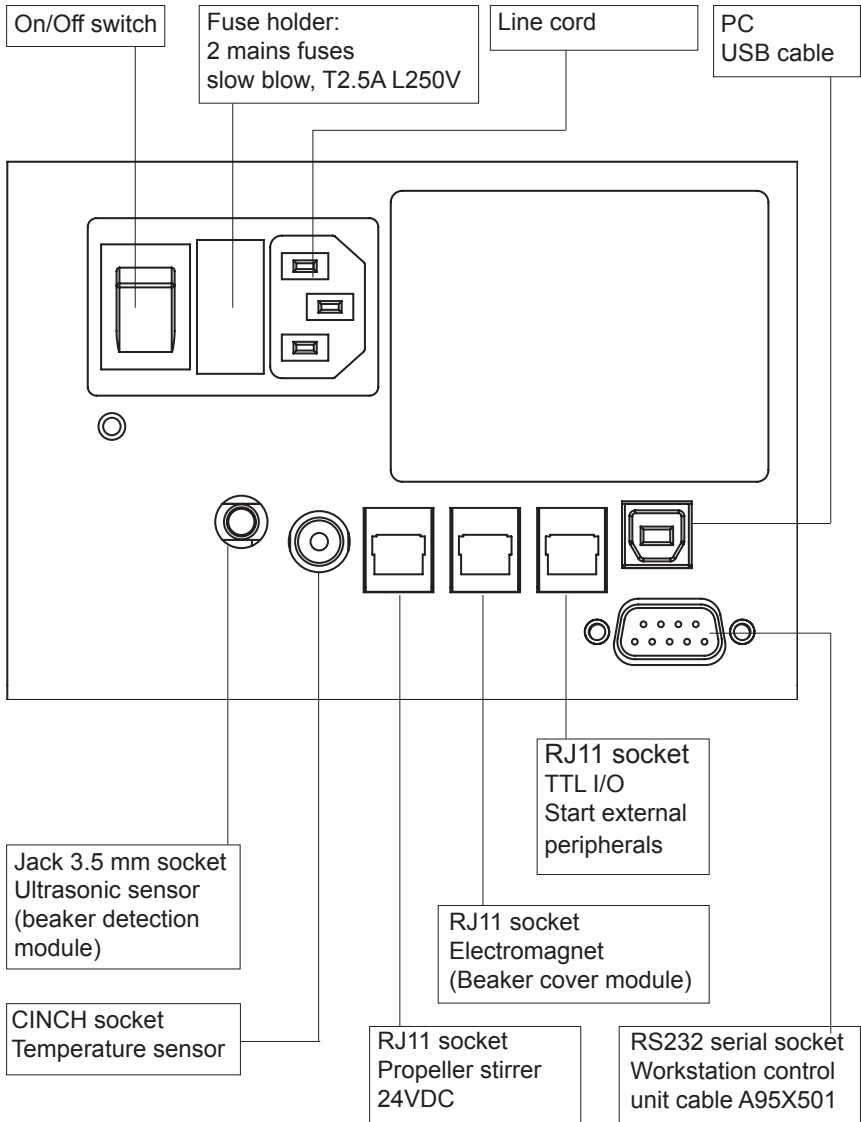
Altitude \leq 2000 m.

Variations of the mains voltage do not exceed \pm 10% of the nominal value.

Level of pollution: 2.

Transitory overvoltage: level II.

Rear panel



International Standards



Radio and Telecommunication Directive (99/5/EEC)

Standards :

EN300330-1

en301489

EMC Directive (2004/108/EEC)

The sample changer complies with following standards:
Class A equipment for laboratory use, according to the standard
EN 61326-1.

Emission:

EN 55022

EN 61000-3-2

EN 61000-3-3

Immunity:

EN 61000-4-2

EN 61000-4-3

EN 61000-4-4

EN 61000-4-5

EN 61000-4-6

EN 61000-4-11

Low Voltage Directive (2006/95/EEC)

The sample changer complies with the following standard:
Reference standard: EN 61010-1.



The sample changer complies with the following standards:

UL 61010-1

CAN / CSA C22 2 N° 61010-1



The sample changer complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

See Chapter 1, "Compliance with FCC rules, part 15 - Information to the user".

The sample changer complies with IC Rules (FCC Rules applied to Canada)

European RoHS directive 2002/95/EC

The following products:

Part no.	Description
R41T043	SAC850, Sample changer
R41T044	SAC950, Sample changer
X91T095	Dynamic rinse module
X91T096	Reagent addition module
X16T016	Beaker cover module
X61T007	Propeller Stirrer

comply with the European RoHS directive 2002/95/EC.



Electrical and electronic equipment marked with this symbol may not be disposed of in European public disposal systems after 13 August of 2005. In conformity with European local and national regulations (EU Directive 2002/96/EC), European electrical equipment users must now return old or end-of life equipment to the Producer for disposal at no charge to the user.

Note: For equipment produced by "Radiometer Analytical", please talk to your local contact.

Important document. Retain with product records.

GERMAN

Elektrogeräte, die mit diesem Symbol gekennzeichnet sind, dürfen in Europa nach dem 13. August 2005 nicht mehr über die öffentliche Abfallentsorgung entsorgt werden. In Übereinstimmung mit lokalen und nationalen europäischen Bestimmungen (EU-Richtlinie 2002/96/EC), müssen Benutzer von Elektrogeräten in Europa ab diesem Zeitpunkt alte bzw. zu verschrottende Geräte zur Entsorgung kostenfrei an den Hersteller zurückgeben.

Hinweis: Für die Entsorgung von elektronischen Geräten, die von "Radiometer Analytical" geliefert oder produziert wurden, bitte kontaktieren Sie Ihren lokalen Ansprechpartner.

Wichtige Informationen. Bitte zusammen mit den Produktinformationen aufbewahren.

FRENCH

Les équipements électriques et électroniques repérés par ce symbole ne devront plus être déposés dans un système de collecte d'ordures ménagères d'un pays européen à partir du 13 août 2005. Conformément à la réglementation Européenne et nationale (Directive EU 2002/96/CE), les utilisateurs européens d'appareillage électrique doivent à présent retourner au fabricant leurs équipements anciens ou en fin de vie pour être recyclés. Les frais de traitement sont à la charge du fabricant.

Note : Pour un équipement produit par "Radiometer Analytical", nous vous saurions gré de bien vouloir contacter votre partenaire local.

Ce document est important. Conservez-le dans le dossier du produit.

ITALIAN

Le apparecchiature elettriche con apposto questo simbolo non possono essere smaltite nelle discariche pubbliche europee successivamente al 13 agosto 2005. In conformità alle normative europee locali e nazionali (Direttiva UE 2002/96/EC), gli utilizzatori europei di apparecchiature elettriche devono restituire al produttore le apparecchiature vecchie o a fine vita per lo smaltimento senza alcun costo a carico dell'utilizzatore.

N.B.: per l'equipaggiamento prodotto da "Radiometer Analytical", si prega di contattare il responsabile locale.

Documento importante. Conservare con la documentazione del prodotto.

DANISH

Elektriske apparater, der er mærket med dette symbol, må ikke bortskaffes i europæiske offentlige affaldssystemer efter den 13. august 2005. I henhold til europæiske lokale og nationale regler (EU-direktiv 2002/96/EF) skal europæiske brugere af elektriske apparater nu returnere gamle eller udtjente apparater til producenten med henblik på bortskaffelse uden omkostninger for brugeren.

Bemærk: For udstyr produceret af "Radiometer Analytical", affaldsanlæg, kontakt den lokale kontaktperson.

Vigtigt dokument. Opbevares sammen med produktdokumenterne.

SWEDISH

Elektronikutrustning som är märkt med denna symbol kanske inte kan lämnas in på europeiska offentliga sopstationer efter 2005-08-13. Enligt europeiska lokala och nationella föreskrifter (EU-direktiv 2002/96/EC) måste användare av elektronikutrustning i Europa nu återlämna gammal eller uttrangerad utrustning till tillverkaren för kassering utan kostnad för användaren.

Observera: För utrustning som levererats eller tillverkats av "Radiometer Analytical", var snäll och ta kontakt med den lokala representanten.

Viktigt dokument. Spara tillsammans med dina produktbeskrivningar.

SPANISH

A partir del 13 de agosto de 2005, los equipos eléctricos que lleven este símbolo no deberán ser desechados en los puntos limpios europeos. De conformidad con las normativas europeas locales y nacionales (Directiva de la UE 2002/96/EC), a partir de esa fecha, los usuarios europeos de equipos eléctricos deberán devolver los equipos usados u obsoletos al fabricante de los mismos para su reciclado, sin coste alguno para el usuario.

Nota: Para equipos fabricados por "Radiometer Analytical", desechos, sírvase consultar con el responsable para su zona.

Documento importante. Guardar junto con los registros de los equipos.

DUTCH

Elektrische apparatuur die is voorzien van dit symbool mag na 13 augustus 2005 niet meer worden afgevoerd naar Europese openbare afvalsystemen. Conform Europese lokale en nationale wetgeving (EU-richtlijn 2002/96/EC) dienen gebruikers van elektrische apparaten voortaan hun oude of afgedankte apparatuur kosteloos voor recycling of vernietiging naar de producent terug te brengen.

Opmerking: neem voor apparatuur die wordt geproduceerd door "Radiometer Analytical", gelieve contact op te nemen met uw lokale contactpersoon.

Belangrijk document. Bewaar het bij de productpapieren.

POLISH

Sprzęt elektryczny oznaczony takim symbolem nie może być likwidowany w europejskich systemach utylizacji po dniu 12 sierpnia 2005. Zgodnie z europejskimi, lokalnymi i państwowymi przepisami prawa (Dyrektywa Unii Europejskiej 2002/96/EC), użytkownicy sprzętu elektrycznego w Europie muszą obecnie przekazywać Producentowi stary sprzęt lub sprzęt po okresie użytkowania do bezpłatnej utylizacji.

Uwaga: W przypadku urządzeń wyprodukowanych lub dostarczonych przez "Radiometer Analytical", prosimy skontaktować się z Państwem lokalnym przedstawicielem firmy.

Ważny dokument. Zachować z dokumentacją produktu.

PORTUGUESE

Qualquer equipamento eléctrico que ostente este símbolo não poderá ser eliminado através dos sistemas públicos europeus de tratamento de resíduos sólidos a partir de 13 de Agosto de 2005. De acordo com as normas locais e europeias (Directiva Europeia 2002/96/EC), os utilizadores europeus de equipamentos eléctricos deverão agora devolver os seus equipamentos velhos ou em fim de vida ao produtor para o respectivo tratamento sem quaisquer custos para o utilizador.

Nota: Relativamente ao equipamento produzido por "Radiometer Analytical", é favor recomendamos-vos que contacte o vosso parceiro local.

Documento importante. Mantenha junto dos registos do produto.