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**FLUKE®**

# 1735

Power Logger

Getting Started

PN 3611908  
February 2010  
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## LIMITED WARRANTY AND LIMITATION OF LIABILITY

Each Fluke product is warranted to be free from defects in material and workmanship under normal use and service. The warranty period is two years and begins on the date of shipment. Parts, product repairs, and services are warranted for 90 days. This warranty extends only to the original buyer or end-user customer of a Fluke authorized reseller, and does not apply to fuses, disposable batteries, or to any product which, in Fluke's opinion, has been misused, altered, neglected, contaminated, or damaged by accident or abnormal conditions of operation or handling. Fluke warrants that software will operate substantially in accordance with its functional specifications for 90 days and that it has been properly recorded on non-defective media. Fluke does not warrant that software will be error free or operate without interruption.

Fluke authorized resellers shall extend this warranty on new and unused products to end-user customers only but have no authority to extend a greater or different warranty on behalf of Fluke. Warranty support is available only if product is purchased through a Fluke authorized sales outlet or Buyer has paid the applicable international price. Fluke reserves the right to invoice Buyer for importation costs of repair/replacement parts when product purchased in one country is submitted for repair in another country.

Fluke's warranty obligation is limited, at Fluke's option, to refund of the purchase price, free of charge repair, or replacement of a defective product which is returned to a Fluke authorized service center within the warranty period.

To obtain warranty service, contact your nearest Fluke authorized service center to obtain return authorization information, then send the product to that service center, with a description of the difficulty, postage and insurance prepaid (FOB Destination). Fluke assumes no risk for damage in transit. Following warranty repair, the product will be returned to Buyer, transportation prepaid (FOB Destination). If Fluke determines that failure was caused by neglect, misuse, contamination, alteration, accident, or abnormal condition of operation or handling, including overvoltage failures caused by use outside the product's specified rating, or normal wear and tear of mechanical components, Fluke will provide an estimate of repair costs and obtain authorization before commencing the work. Following repair, the product will be returned to the Buyer transportation prepaid and the Buyer will be billed for the repair and return transportation charges (FOB Shipping Point).

THIS WARRANTY IS BUYER'S SOLE AND EXCLUSIVE REMEDY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. FLUKE SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, INCLUDING LOSS OF DATA, ARISING FROM ANY CAUSE OR THEORY. Since some countries or states do not allow limitation of the term of an implied warranty, or exclusion or limitation of incidental or consequential damages, the limitations and exclusions of this warranty may not apply to every buyer. If any provision of this Warranty is held invalid or unenforceable by a court or other decision-maker of competent jurisdiction, such holding will not affect the validity or enforceability of any other provision.

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To register your product, visit <http://register.fluke.com>.

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**For complete operational instructions, refer to the Users Manual contained on the accompanying CD.**

## LIMITES DE GARANTIE ET DE RESPONSABILITE

La société Fluke garantit l'absence de vices de matériaux et de fabrication de ses produits dans des conditions normales d'utilisation et d'entretien. La période de garantie est de 2 ans et prend effet à la date d'expédition. Les pièces, les réparations de produit et les services sont garantis pour un période de 90 jours. Cette garantie ne s'applique qu'à l'acheteur d'origine ou à l'utilisateur final s'il est client d'un distributeur agréé par Fluke, et ne s'applique pas aux fusibles, aux batteries/piles interchangeables ni à aucun produit qui, de l'avis de Fluke, a été malmené, modifié, négligé, contaminé ou endommagé par accident ou soumis à des conditions anormales d'utilisation et de manipulation. Fluke garantit que le logiciel fonctionnera en grande partie conformément à ses spécifications fonctionnelles pour une période de 90 jours et qu'il a été correctement enregistré sur des supports non défectueux. Fluke ne garantit pas que le logiciel ne contient pas d'erreurs ou qu'il fonctionne sans interruption.

Les distributeurs agréés par Fluke appliqueront cette garantie à des produits vendus à leurs clients neufs et qui n'ont pas servi mais ne sont pas autorisés à appliquer une garantie plus étendue ou différente au nom de Fluke. Le support de garantie est offert uniquement si le produit a été acquis par l'intermédiaire d'un point de vente agréé par Fluke ou bien si l'acheteur a payé le prix international applicable. Fluke se réserve le droit de facturer à l'acheteur les frais d'importation des pièces de réparation ou de remplacement si le produit acheté dans un pays a été expédié dans un autre pays pour y être réparé.

L'obligation de garantie de Fluke est limitée, au choix de Fluke, au remboursement du prix d'achat, ou à la réparation/remplacement gratuit d'un produit défectueux retourné dans le délai de garantie à un centre de service agréé par Fluke.

Pour avoir recours au service de la garantie, mettez-vous en rapport avec le centre de service agréé Fluke le plus proche pour recevoir les références d'autorisation de renvoi, ou envoyez le produit, accompagné d'une description du problème, port et assurance payés (franco lieu de destination), à ce centre de service. Fluke dégage toute responsabilité en cas de dégradations survenues au cours du transport. Après la réparation sous garantie, le produit sera retourné à l'acheteur, frais de port payés d'avance (franco lieu de destination). Si Fluke estime que le problème est le résultat d'une négligence, d'un traitement abusif, d'une contamination, d'une modification, d'un accident ou de conditions de fonctionnement ou de manipulation anormales, notamment de surtensions liées à une utilisation du produit en dehors des spécifications nominales, ou de l'usure normale des composants mécaniques, Fluke fournira un devis des frais de réparation et ne commencera la réparation qu'après en avoir reçu l'autorisation. Après la réparation, le produit sera retourné à l'acheteur, frais de port payés d'avance, et les frais de réparation et de transport lui seront facturés.

**LA PRESENTE GARANTIE EST EXCLUSIVE ET TIENT LIEU DE TOUTES AUTRES GARANTIES, EXPLICITES OU IMPLICITES, Y COMPRIS, MAIS NON EXCLUSIVEMENT, TOUTE GARANTIE IMPLICITE QUANT A L'APTITUDE DU PRODUIT A ETRE COMMERCIALISE OU A ETRE APPLIQUE A UNE FIN OU A UN USAGE DETERMINE. FLUKE NE POURRA ETRE TENU RESPONSABLE D'AUCUN DOMMAGE PARTICULIER, INDIRECT, ACCIDENTEL OU CONSECUTIF, NI D'AUCUNS DEGATS OU PERTES, DE DONNEES NOTAMMENT, SUR UNE BASE CONTRACTUELLE, EXTRA-CONTRACTUELLE OU AUTRE.**

Etant donné que certains pays ou états n'admettent pas les limitations d'une condition de garantie implicite, ou l'exclusion ou la limitation de dégâts accidentels ou consécutifs, il se peut que les limitations et les exclusions de cette garantie ne s'appliquent pas à chaque acheteur. Si une disposition quelconque de cette garantie est jugée non valide ou inapplicable par un tribunal ou un autre pouvoir décisionnel compétent, une telle décision n'affectera en rien la validité ou le caractère exécutoire de toute autre disposition.

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Pour enregistrer votre produit en ligne, allez à <http://register.fluke.com>.

**Reportez-vous au Mode d'emploi fourni sur le CD d'accompagnement pour les instructions de fonctionnement complètes.**

(French)

## BEGRENZTE GEWÄHRLEISTUNG UND HAFTUNGSBESCHRÄNKUNG

Fluke gewährleistet, daß jedes Fluke-Produkt unter normalem Gebrauch und Service frei von Material- und Fertigungsdefekten ist. Die Garantiedauer beträgt 2 Jahre ab Versanddatum. Die Garantiedauer für Teile, Produktreparaturen und Service beträgt 90 Tage. Diese Garantie wird ausschließlich dem Ersterwerber bzw. dem Endverbraucher geleistet, der das betreffende Produkt von einer von Fluke autorisierten Verkaufsstelle erworben hat, und erstreckt sich nicht auf Sicherungen, Einwegbatterien oder andere Produkte, die nach dem Ermessen von Fluke unsachgemäß verwendet, verändert, verschmutzt, vernachlässigt, durch Unfälle beschädigt oder abnormalen Betriebsbedingungen oder einer unsachgemäßen Handhabung ausgesetzt wurden. Fluke garantiert für einen Zeitraum von 90 Tagen, daß die Software im wesentlichen in Übereinstimmung mit den einschlägigen Funktionsbeschreibungen funktioniert und daß diese Software auf fehlerfreien Datenträgern gespeichert wurde. Fluke übernimmt jedoch keine Garantie dafür, daß die Software fehlerfrei ist und störungsfrei arbeitet.

Von Fluke autorisierte Verkaufsstellen werden diese Garantie ausschließlich für neue und nicht benutzte, an Endverbraucher verkaufte Produkte leisten. Die Verkaufsstellen sind jedoch nicht dazu berechtigt, diese Garantie im Namen von Fluke zu verlängern, auszudehnen oder in irgendeiner anderen Weise abzuändern. Der Erwerber hat nur dann das Recht, aus der Garantie abgeleitete Unterstützungsleistungen in Anspruch zu nehmen, wenn er das Produkt bei einer von Fluke autorisierten Vertriebsstelle gekauft oder den jeweils geltenden internationalen Preis gezahlt hat. Fluke behält sich das Recht vor, dem Erwerber Einfuhrgebühren für Ersatzteile in Rechnung zu stellen, wenn dieser das Produkt in einem anderen Land zur Reparatur anbietet, als dem Land, in dem er das Produkt ursprünglich erworben hat.

Flukes Garantieverpflichtung beschränkt sich darauf, daß Fluke nach eigenem Ermessen den Kaufpreis ersetzt oder aber das defekte Produkt unentgeltlich repariert oder austauscht, wenn dieses Produkt innerhalb der Garantiefrist einem von Fluke autorisierten Servicezentrum zur Reparatur übergeben wird.

Um die Garantieleistung in Anspruch zu nehmen, wenden Sie sich bitte an das nächstgelegene und von Fluke autorisierte Servicezentrum, um Rücknahmeinformationen zu erhalten, und senden Sie dann das Produkt mit einer Beschreibung des Problems und unter Vorauszahlung von Fracht- und Versicherungskosten (FOB Bestimmungsort) an das nächstgelegene und von Fluke autorisierte Servicezentrum. Fluke übernimmt keine Haftung für Transportschäden. Im Anschluß an die Reparatur wird das Produkt unter Vorauszahlung von Frachtkosten (FOB Bestimmungsort) an den Erwerber zurückgesandt. Wenn Fluke jedoch feststellt, daß der Defekt auf Vernachlässigung, unsachgemäße Handhabung, Verschmutzung, Veränderungen am Gerät, einen Unfall oder auf anormale Betriebsbedingungen, einschließlich durch außerhalb der für das Produkt spezifizierten Belastbarkeit verursachten Überspannungsfehlern, zurückzuführen ist, wird Fluke dem Erwerber einen Voranschlag der Reparaturkosten zukommen lassen und erst die Zustimmung des Erwerbers einholen, bevor die Arbeiten begonnen werden. Nach der Reparatur wird das Produkt unter Vorauszahlung der Frachtkosten an den Erwerber zurückgeschickt, und es werden dem Erwerber die Reparaturkosten und die Versandkosten (FOB Versandort) in Rechnung gestellt.

DIE VORSTEHENDEN GARANTIEBESTIMMUNGEN STELLEN DEN EINZIGEN UND ALLEINIGEN RECHTSANSPRUCH AUF SCHADENERSATZ DES ERWERBERS DAR UND GELTEN AUSSCHLIESSLICH UND AN STELLE VON ALLEN ANDEREN VERTRAGLICHEN ODER GESETZLICHEN GEWÄHRLEISTUNGSPFLICHTEN, EINSCHLIESSLICH - JEDOCH NICHT DARAUF BESCHRÄNKT - DER GESETZLICHEN GEWÄHRLEISTUNG DER MARKTFÄHIGKEIT, DER GEBRAUCHSEIGNUNG UND DER ZWECKDIENLICHKEIT FÜR EINEN BESTIMMTEN EINSATZ. FLUKE HAFTET NICHT FÜR SPEZIELLE, UNMITTELBARE, MITTELBARE, BEGLEIT- ODER FOLGESCHÄDEN ODER VERLUSTE, EINSCHLIESSLICH VERLUST VON DATEN, UNABHÄNGIG VON DER URSACHE ODER THEORIE.

Angesichts der Tatsache, daß in einigen Ländern die Begrenzung einer gesetzlichen Gewährleistung sowie der Ausschluß oder die Begrenzung von Begleit- oder Folgeschäden nicht zulässig ist, kann es sein, daß die obengenannten Einschränkungen und Ausschlüsse nicht für jeden Erwerber gelten. Sollte eine Klausel dieser Garantiebestimmungen von einem zuständigen Gericht oder einer anderen Entscheidungsinstanz für unwirksam oder nicht durchsetzbar befunden werden, so bleiben die Wirksamkeit oder Durchsetzbarkeit irgendeiner anderen Klausel dieser Garantiebestimmungen von einem solchen Spruch unberührt.

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Zur Registrierung der Software <http://register.fluke.com> besuchen.

**Für vollständige Bedienungsanweisungen siehe das Bedienungshandbuch auf zugehörigen CD.**

(German)

## **GARANZIA LIMITATA & LIMITAZIONE DI RESPONSABILITÀ**

Ogni prodotto Fluke è garantito come esente da difetti nei materiali e nella manodopera per normali situazioni di uso. Il periodo di garanzia è di 2 anni a partire dalla data di spedizione. La garanzia per le parti sostituite, le riparazioni e l'assistenza è di 90 giorni. La garanzia è emessa solo a beneficio dell'acquirente originale o del consumatore finale che abbia acquistato il prodotto da un rivenditore Fluke autorizzato. Non copre fusibili, pile di ricambio e qualsiasi apparecchio che, a giudizio della Fluke, sia stato adoperato in modo improprio, modificato, trascurato o danneggiato sia accidentalmente che a causa di condizioni anomale d'uso e manipolazione. La Fluke garantisce per 90 giorni che il software funzionerà sostanzialmente secondo le proprie specifiche operative e che sia stato registrato su supporti non difettosi. Non garantisce che il software sarà esente da errori o che funzionerà senza interruzioni.

I rivenditori autorizzati Fluke sono tenuti ad estendere la presente garanzia per prodotti nuovi e non ancora usati a beneficio esclusivo degli utenti finali, ma non sono autorizzati a emettere una garanzia diversa o più ampia a nome della Fluke. La garanzia è valida solo se il prodotto è stato acquistato attraverso la rete commerciale Fluke o se l'acquirente ha pagato il prezzo non scontato. La Fluke si riserva il diritto di fatturare all'acquirente i costi di importazione dei ricambi per la riparazione/sostituzione eseguita, nel caso in cui il prodotto acquistato in un Paese sia sottoposto a riparazione in un altro.

L'obbligo di garanzia è limitato, a discrezione della Fluke, al rimborso del prezzo d'acquisto, alla riparazione gratuita o alla sostituzione di un prodotto difettoso che sia inviato ad un centro assistenza autorizzato Fluke entro il periodo di garanzia.

Per usufruire dell'assistenza in garanzia, rivolgersi al più vicino centro assistenza autorizzato Fluke per ottenere informazioni sull'autorizzazione al reso. Quindi spedire il prodotto al centro di assistenza. Il prodotto deve essere accompagnato da una descrizione dei problemi riscontrati, e deve essere spedito in porto franco e con assicurazione pre-pagata. La Fluke declina ogni responsabilità per danni in transito. A seguito delle riparazioni in garanzia, il prodotto sarà restituito all'acquirente in porto franco. Se la Fluke accerta che il guasto sia stato causato da negligenza, uso improprio, contaminazione, alterazione, incidente o condizioni anomale di uso e manipolazione (comprese le sovratensioni causate dall'uso dello strumento oltre la propria portata nominale e l'usura dei componenti meccanici dovuta all'uso normale dello strumento), la Fluke presenterà una stima dei costi di riparazione e attenderà l'autorizzazione dell'utente a procedere alla riparazione. In seguito alla riparazione, il prodotto sarà restituito all'acquirente con addebito delle spese di riparazione e di spedizione.

**LA PRESENTE GARANZIA È L'UNICO ED ESCLUSIVO RICORSO DISPONIBILE ALL'ACQUIRENTE ED È EMESSA IN SOSTITUZIONE DI OGNI ALTRA GARANZIA, ESPRESSA OD IMPLICITA, COMPRESA, MA NON LIMITATA AD ESSA, QUALSIASI GARANZIA IMPLICITA DI COMMERCIALIZZABILITÀ O DI IDONEITÀ PER USI PARTICOLARI. LA FLUKE DECLINA OGNI RESPONSABILITÀ PER DANNI O PERDITE PARTICOLARI, INDIRETTI, INCIDENTALI O CONSEGUENTI, COMPRESA LA PERDITA DI DATI DOVUTI A QUALSIASI CAUSA O TEORIA.**

Poiché alcuni Paesi non consentono di limitare i termini di una garanzia implicita né l'esclusione o la limitazione di danni accidentali o sequenziali, le limitazioni e le esclusioni della presente garanzia possono non valere per tutti gli acquirenti. Se una clausola qualsiasi della presente garanzia non è ritenuta valida o attuabile dal tribunale o altro foro competente, tale giudizio non avrà effetto sulla validità delle altre clausole.

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Per registrare il prodotto in linea, visitare il sito <http://register.fluke.com>.

**Per istruzioni complete sull'uso degli strumenti, fare riferimento al Manuale d'uso contenuto nel CD allegato.**

(Italian)

## GARANTÍA LIMITADA Y LIMITACIÓN DE RESPONSABILIDAD

Se garantiza que todo producto de Fluke no tendrá defectos en los materiales ni en la mano de obra en condiciones normales de utilización y mantenimiento. El periodo de garantía es de 2 años y comienza en la fecha de despacho. Las piezas de repuesto, reparaciones y servicios son garantizados por 90 días. Esta garantía se extiende sólo al comprador original o al cliente final de un revendedor autorizado por Fluke y no es válida para fusibles, baterías desechables o productos que, en opinión de Fluke, hayan sido utilizados incorrectamente, modificados, maltratados, contaminados o dañados ya sea accidentalmente o a causa de condiciones de funcionamiento o manejo anormales. Fluke garantiza que el software funcionará substancialmente de acuerdo con sus especificaciones funcionales durante 90 días y que ha sido grabado correctamente en un medio magnético sin defectos. Fluke no garantiza que el software no tendrá errores ni que operará sin interrupción.

Los revendedores autorizados por Fluke podrán extender esta garantía solamente a los Compradores finales de productos nuevos y sin uso previo, pero carecen de autoridad para extender una garantía mayor o diferente en nombre de Fluke. La asistencia técnica en garantía estará disponible únicamente si el producto fue comprado a través de un centro de distribución autorizado por Fluke o si el comprador pagó el precio internacional correspondiente. Fluke se reserva el derecho a facturar al Comprador los costos de importación de reparaciones/repuestos cuando el producto comprado en un país es enviado a reparación a otro país.

La obligación de Fluke de acuerdo con la garantía está limitada, a discreción de Fluke, al reembolso del precio de compra, reparación gratuita o al reemplazo de un producto defectuoso que es devuelto a un centro de servicio autorizado por Fluke dentro del periodo de garantía.

Para obtener el servicio de la garantía, comuníquese con el centro de servicio autorizado por Fluke más cercano a usted, solicite la información correspondiente a la autorización de la devolución y luego envíe el producto a dicho centro de servicio con una descripción del fallo y los portes y el seguro prepagados (FOB destino). Fluke no asume ningún riesgo por daño durante el tránsito. Después de la reparación de garantía, el producto será devuelto al Comprador, con los fletes prepagados (FOB destino). Si Fluke determina que el fallo fue causado por maltrato, mala utilización, contaminación, modificación o por una condición accidental o anormal presentada durante el funcionamiento o manejo, incluidos los fallos por sobretensión causados por el uso fuera de los valores nominales especificados para el producto, o por el desgaste normal de los componentes mecánicos, Fluke preparará una estimación de los costos de reparación y obtendrá su autorización antes de comenzar el trabajo. Al concluir la reparación, el producto será devuelto al Comprador con los fletes prepagados y al Comprador le serán facturados la reparación y los costos de transporte (FOB en el sitio de despacho).

ESTA GARANTÍA ES EL ÚNICO Y EXCLUSIVO RECURSO DEL COMPRADOR Y SUBSTITUYE A TODAS LAS OTRAS GARANTÍAS, EXPRESAS O IMPLÍCITAS, INCLUYENDO, PERO SIN LIMITARSE A, TODA GARANTÍA IMPLÍCITA DE COMERCIABILIDAD O IDONEIDAD PARA UN PROPÓSITO DETERMINADO. FLUKE NO SE RESPONSABILIZA DE PÉRDIDAS NI DAÑOS ESPECIALES, INDIRECTOS, IMPREVISTOS O CONTINGENTES, INCLUIDA LA PÉRDIDA DE DATOS, QUE SURJAN POR CUALQUIER TIPO DE CAUSA O TEORÍA.

Como algunos países o estados no permiten la limitación de los términos de una garantía implícita, ni la exclusión ni limitación de daños incidentales o consecuentes, las limitaciones y exclusiones de esta garantía pueden no ser válidas para todos los Compradores. Si una cláusula de esta Garantía es considerada inválida o inaplicable por un tribunal o por algún otro ente de jurisdicción competente y responsable de la toma de decisiones, dicha consideración no afectará la validez o aplicabilidad de cualquier otra cláusula.

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Para registrar su producto en línea, visite <http://register.fluke.com>.

**Para obtener instrucciones operacionales completas, consulte el Manual de uso de contenido en el CD adjunto.**

(Spanish)

## **GARANTIA LIMITADA E LIMITAÇÃO DE RESPONSABILIDADE**

Todos os produtos da Fluke são garantidos contra defeitos de material ou fabricação, sob circunstâncias normais de uso e manutenção. O período de garantia é de 2 anos, a partir da data da remessa. As peças, reparos e serviços são garantidos por 90 dias. Esta garantia se aplica apenas ao comprador original, ou ao cliente usuário-final de um revendedor autorizado da Fluke, e não cobre fusíveis, baterias descartáveis, nem qualquer produto que, na opinião da Fluke, tenha sido usado de forma inadequada, alterado, tenha recebido manutenção inadequada ou tenha sido danificado por acidente ou condições anormais de operação ou manuseio. A Fluke garante que o software funcionará de acordo com as suas especificações técnicas pelo período de 90 dias, e que foi gravado de forma adequada em meio físico sem defeitos. A Fluke não garante que o software esteja livre de defeitos, nem que funcionará sem interrupções.

Os vendedores autorizados da Fluke fornecerão esta garantia de produtos novos e não usados apenas a clientes usuários finais, mas não têm qualquer autoridade para fornecer, em nome da Fluke, uma garantia mais ampla ou diferente da presente. A assistência técnica coberta pela garantia está disponível se o produto houver sido adquirido de uma loja autorizada da Fluke, ou se o Comprador tiver pago o preço internacional aplicável. A Fluke se reserva o direito de cobrar do Comprador taxas relativa a custos de importação referentes a peças de substituição/reparos quando o produto for comprado em um país e submetido para reparos em um outro país.

As obrigações da Fluke pertinentes a esta garantia são limitadas, a critério da Fluke, à devolução da importância correspondente ao preço pago pela compra do produto, reparos gratuitos, ou substituição de um produto defeituoso que seja devolvido a um centro autorizado de reparos da Fluke dentro do período coberto pela garantia.

Para obter serviços cobertos pela garantia, entre em contato com o centro autorizado de reparos da Fluke mais próximo para obter informações sobre autorizações de retorno e então, envie o produto para o centro autorizado, com uma descrição do problema encontrado e com frete e seguro já pagos (FOB no destino), ao centro autorizado de reparos mais próximo. A Fluke não se responsabiliza por nenhum dano que possa ocorrer durante o transporte. Após serem efetuados os serviços cobertos pela garantia, o produto será devolvido ao Comprador, com frete já pago (FOB no destino). Se a Fluke constatar que a falha do produto foi causada por uso inadequado, contaminação, alterações, acidente, ou condições anormais de operação ou manuseio, inclusive falhas devidas a sobretensão causadas pelo uso do produto fora das faixas e classificações especificadas, ou pelo desgaste normal de componentes mecânicos, a Fluke dará uma estimativa dos custos de reparo, e obterá autorização do cliente antes de começar os reparos. Após a realização dos reparos, o produto será devolvido ao Comprador com frete já pago e este reembolsará a Fluke pelos custos dos reparos e do transporte de retorno (FOB no local de remessa).

ESTA GARANTIA É O ÚNICO E EXCLUSIVO RECURSO JURÍDICO DO COMPRADOR, E SUBSTITUI TODAS AS OUTRAS GARANTIAS, EXPRESSAS OU IMPLÍCITAS, INCLUINDO, MAS NÃO SE LIMITANDO A, QUALQUER GARANTIA IMPLÍCITA DE COMERCIALIZABILIDADE OU ADEQUABILIDADE PARA UM DETERMINADO FIM. A FLUKE NÃO SE RESPONSABILIZA POR NENHUM DANO OU PERDA, INCIDENTAL OU CONSEQUENTE, QUE POSSA OCORRER POR QUALQUER MOTIVO OU QUE SEJA DECORRENTE DE QUALQUER CAUSA OR TEORIA JURÍDICA.

Como alguns estados ou países não permitem a exclusão ou limitação de uma garantia implícita nem de danos incidentais ou consequentes, esta limitação de responsabilidade pode não ser aplicável no seu caso. Se uma corte qualificada de jurisdição considerar qualquer provisão desta garantia inválida ou não-executável, tal decisão judicial não afetará a validade ou executabilidade de qualquer outra provisão.

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Para registrar produtos on-line, visite o site <http://register.fluke.com>.

**Para obter instruções completas de operação, veja o Manual do Usuário do contido no CD fornecido com o instrumento.**

(Portuguese)

## BEGRÄNSAD GARANTI OCH ANSVARSBEGRÄNSNING

Varje Flukeprodukt garanteras vara fri från felaktigheter i material och utförande vid normal användning och service. Garantiperioden är 2 år och räknas från leveransdagen. För delar, produktreparationer och service gäller 90 dagars garanti. Denna garanti gäller endast för den ursprungliga köparen eller slutkunden, som handlat hos en auktoriserad Flukeåterförsäljare, och omfattar inte säkringar, engångsbatterier eller produkter, som enligt Flukes förmenande har använts på felaktigt sätt, ändrats, smutsats ner eller skadats till följd av olyckshändelse eller onormala användningsförhållanden eller onormal hantering. Fluke garanterar att programvaran fungerar i allt väsentligt i enlighet med dess funktionella specifikationer i 90 dagars tid, och att den lagrats på korrekt sätt på icke-defekta datamedia. Fluke garanterar inte att programvaran är felfri och heller inte att den fungerar utan avbrott.

Flukes auktoriserade återförsäljare förmedlar denna garanti endast till slutanvändarkunder för nya och obegagnade produkter, men har ingen behörighet att erbjuda en mer omfattande eller annorlunda garanti i Flukes namn. Garantisupport finns endast tillgänglig om produkten köpts i av Fluke auktoriserad butik, eller om köparen erlagt det tillämpliga internationella priset. Fluke förbehåller sig rätten att debitera köparen för importkostnaden för reparations/ersättningsdelar, om en produkt som inköpts i ett land lämnas in för reparation i ett annat land.

Flukes garantiätagande begränsar sig till, efter Flukes bedömning, antingen återbetalning av inköpspriset, kostnadsfri reparation eller utbyte av en felaktig produkt, som lämnas in/återsänds till av Fluke auktoriserad serviceverkstad under garantitiden.

För att få garantiservice kontaktar du närmaste av Fluke auktoriserade serviceverkstad för returtillstånd, och skickar sedan produkten till serviceverkstaden ifråga med en beskrivning av de problem som föreligger, med sändnings- och servicekostnaderna förbetalda (FOB destinationen). Fluke tar inte på sig något ansvar för skador som kan uppkomma vid försändningen. Efter garantireparationen återsänds produkten till köparen, med sändningskostnaderna förbetalda (FOB destinationen). Om Fluke bedömer att felet har förorsakats av försurmelse, felaktig användning, nedsmutsning, ändring, olyckshändelse eller onormala förhållanden eller onormal hantering, inberäknat överspänningsfel till följd av användning utanför de värden som specificerats för produkten, eller normal förlitning av mekaniska komponenter, kommer Fluke and lämna besked om de uppskattade reparationskostnaderna och invänta godkännande av dessa innan arbetet påbörjas. Efter reparationen återsänds produkten till köparen med sändningskostnaden förbetald varefter köparen faktureras för reparationskostnaden och återsändningskostnaden (FOB leveransstället).

DENNA GARANTI ÄR KÖPARENS ENDA GOTTGÖRELSE OCH ERSÄTTER ALLA ANDRA GARANTIER, UTTRYCKLIGA ELLER UNDERFÖRSTÅDDA, INKLUSIVE MEN INTE BEGRÄNSAT TILL GARANTIER AVSEENDE SÄLJBARHET ELLER LÄMPLIGHET FÖR EN VISS ANVÄNDNING. FLUKE KAN INTE GÖRAS ANSVARIGT FÖR NÅGRA SPECIELLA SKADOR, INDIREKTA SKADOR, OFÖRUTSEDDA SKADOR ELLER FÖLJDSKADOR, INKLUSIVE FÖRLORADE DATA, OAVSETT ANLEDNING ELLER TEORETISK ORSAK.

Vissa stater eller länder tillåter inte begränsningar av en underförstådd garantis löptid, eller undantag eller begränsning av tillfälliga skador eller följdskador, varför begränsningarna och undantagen i denna garanti kanske inte gäller för varje köpare. Om något villkor i denna garanti skulle konstateras vara ogiltigt eller otillämpligt av en behörig domstol eller motsvarande, skall ett sådant utslag inte inverka på giltigheten eller tillämpbarheten hos något annat villkor.

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**Fullständiga användaranvisningar finns i Användarhandbok på den medföljande cd-skivan.**

(Swedish)



## 有限保证和责任限制

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要求保修服务时，请与就近的 Fluke 授权服务中心联系，获得退还授权信息；然后将产品连同问题描述寄至该服务中心，并预付邮资和保险费用（目的地离岸价格）。Fluke 对运送途中发生的损坏不承担责任。在保修之后，产品将被寄回给买方并提前支付运输费（目的地交货）。如果 Fluke 认定产品故障是由于疏忽、误用、污染、修改、意外或不当操作或处理状况而产生，包括未在产品规定的额定值下使用引起的过压故障；或是由于机件日常使用损耗，则 Fluke 会估算修理费用，在获得买方同意后再进行修理。在修理之后，产品将被寄回给买方并预付运输费；买方将收到修理和返程运输费用（寄发地交货）的帐单。

本保证为买方唯一能获得的全部赔偿内容，并且取代所有其它明示或隐含的保证，包括但不限于适销性或适用于特殊目的的任何隐含保证。FLUKE 对任何特殊、间接、偶发或后续的损坏或损失概不负责，包括由于任何原因或推理引起的数据丢失。

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如要在线注册您的产品，请访问 [register.fluke.com](http://register.fluke.com).

**若需要完整的操作说明，请参阅随附光盘中包含的用户手册。**

(Simplified Chinese)

## ОГРАНИЧЕННАЯ ГАРАНТИЯ И ОГРАНИЧЕНИЕ ОТВЕТСТВЕННОСТИ

Для каждого продукта Fluke гарантируется отсутствие дефектов материалов и изготовления при нормальном использовании и обслуживании. Срок гарантии два года, начиная с даты поставки. На запчасти, ремонт оборудования и услуги предоставляется гарантия 90 дней. Эта гарантия действует только для первоначального покупателя или конечного пользователя, являющегося клиентом авторизованного реселлера Fluke, и не распространяется на предохранители, одноразовые батареи и на любые продукты, которые, по мнению Fluke, неправильно или небрежно использовались, были изменены, загрязнены или повреждены вследствие несчастного случая или ненормальных условий работы или обработки. Fluke гарантирует, что программное обеспечение будет работать в соответствии с его функциональными характеристиками в течение 90 дней, и что оно правильно записано на исправных носителях. Fluke не гарантирует, что программное обеспечение будет работать безошибочно и без остановки.

Авторизованные реселлеры Fluke расширяют действие этой гарантии на новые и неиспользованные продукты только для конечных пользователей, но они не уполномочены расширять условия гарантии или вводить новые гарантийные обязательства от имени Fluke. Гарантийная поддержка предоставляется, только если продукт приобретен на авторизованной торговой точке Fluke, или покупатель заплатил соответствующую международную цену. Fluke оставляет за собой право выставить покупателю счет за расходы на ввоз запасных/сменных частей, когда продукт, приобретенный в одной стране, передается в ремонт в другой стране. Гарантийные обязательства Fluke ограничены по усмотрению Fluke выплатой покупной цены, бесплатным ремонтом или заменой неисправного продукта, который возвращается в авторизованный сервисный центр Fluke в течение гарантийного периода.

Для получения гарантийного сервисного обслуживания обратитесь в ближайший авторизованный сервисный центр Fluke за информацией о праве на возврат, затем отправьте продукт в этот сервисный центр с описанием проблемы, оплатив почтовые расходы и страховку (ФОб пункт назначения). Fluke не несет ответственности за повреждения при перевозке. После осуществления гарантийного ремонта продукт будет возвращен покупателю с оплаченной перевозкой (ФОб пункт назначения). Если Fluke определяет, что неисправность вызвана небрежностью, неправильным использованием, загрязнением, изменением, несчастным случаем или ненормальными условиями работы и обработки, включая электрическое перенапряжение из-за несоблюдения указанных допустимых значений, или обычным износом механических компонентов, Fluke определит стоимость ремонта и начнет работу после получения разрешения. После ремонта продукт будет возвращен покупателю с оплаченной перевозкой, и покупателю будет выставлен счет за ремонт и транспортные расходы при возврате (ФОб пункт отгрузки). ЭТА ГАРАНТИЯ ЯВЛЯЕТСЯ ЕДИНСТВЕННОЙ И ИСКЛЮЧИТЕЛЬНОЙ И ЗАМЕНЯЕТ ВСЕ ОСТАЛЬНЫЕ ГАРАНТИИ, ПРЯМЫЕ ИЛИ СВЯЗАННЫЕ, ВКЛЮЧАЯ, ПОМИМО ПРОЧЕГО, СВЯЗАННЫЕ ГАРАНТИИ ГОДНОСТИ ДЛЯ ПРОДАЖИ ИЛИ ГОДНОСТИ ДЛЯ ОПРЕДЕЛЕННОЙ ЦЕЛИ. FLUKE НЕ НЕСЕТ ОТВЕТСТВЕННОСТИ ЗА СПЕЦИАЛЬНЫЕ, СЛУЧАЙНЫЕ ИЛИ КОСВЕННЫЕ ПОВРЕЖДЕНИЯ ИЛИ УЩЕРБ, ВКЛЮЧАЯ ПОТЕРЮ ДАННЫХ, ЯВЛЯЮЩИЕСЯ РЕЗУЛЬТАТОМ КАКИХ-ЛИБО ДЕЙСТВИЙ ИЛИ МЕТОДОВ.

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Для регистрации продукта зайдите на сайт <http://register.fluke.com>.

**Полная информация об использовании измерителя содержится в "Руководстве пользователя мультиметров моделей", которое находится на прилагаемом компакт-диске.**

(Russian)

## SINIRLI GARANTİ VE SORUMLULUK SINIRI

Tüm Fluke ürünleri, normal kullanım ve servis koşulları altında madde ve işçilik kusurları olmayacağı konusunda garanti altına alınmıştır. Garanti süresi iki yıl olup, ürünün gönderildiği tarihte başlar. Parçalar, ürün onarımları ve servisler, 90 gün için garanti altına alınmıştır. Bu garanti ancak asıl satın alan veya Fluke yetkili bayiinin son kullanıcı müşterisi için geçerli olup, sigortalar, tek kullanımlık piller veya Fluke şirketine göre yanlış kullanıldığı, değiştirildiği, ihmal edildiği, orijinaliği bozulduğu ya da yanlışlıkla veya anormal bir kullanımı ya da işleme sonucu hasara uğradığı düşünülen hiçbir ürün için geçerli değildir. Fluke, yazılımın teknik çalışma özelliklerine önemli derecede uygun çalışacağını ve kusursuz bilgi saklama ortamı üzerine gerektiği gibi kaydedilmiş olduğunu 90 günlük bir süre için garanti eder. Fluke, yazılımın kesintisiz bir şekilde çalışacağını ya da hatasız olacağını garanti etmez.

Fluke yetkili bayileri, bu garantiyi yeni ve kullanılmamış ürünler için, son kullanıcı müşterilerine verebilir, ancak Fluke adına daha kapsamlı ya da farklı bir garanti veremez. Garanti desteği ancak ürün Fluke yetkili satış noktası aracılığıyla satın alındıysa ya da Alıcı geçerli uluslararası fiyatı ödemişse sağlanır. Fluke, ürünün bir ülkede satın alınıp onarım için başka bir ülkeye gönderilmesi durumunda, parça onarım / değiştirme ithal ücretini faturalama hakkını saklı tutar.

Fluke şirketinin garanti yükümlülüğü, şirketin seçiminde, garanti süresi içinde Fluke yetkili servis merkezine geri verilen kusurlu ürünün satın alım fiyatını iade etmesi, ücretsiz onarımı veya değiştirilmesi ile sınırlıdır.

Garanti hizmetini almak için en yakın Fluke yetkili servis merkezine giderek iade onay bilgilerinizi alınız, sonra da ürünü sorunun tarifıyla birlikte, posta ve sigorta ücreti önceden ödenmiş olarak (FOB Varış Noktasında) o servis merkezine gönderiniz. Fluke, ulaşım sırasındaki hasarlardan sorumlu tutulamaz. Garanti onarımından sonra ürün, ulaşım ücreti önceden ödenmiş olarak (FOB Varış Noktası) Alıcıya geri gönderilecektir. Fluke, bozukluğun ihmali, yanlış kullanım, ürünün orijinalliğinin bozulması, değiştirme, kaza veya ürünün belirlenen elektrik derecelendirmesi dışında kullanılması sonucu aşırı voltaj da dahil, anormal kullanım veya işleme koşulları ya da mekanik bileşenlerin normal aşınması ve eskimesi nedeniyle olduğunu saptarsa, onarım masrafları için bir tahminde bulunacak ve işe başlamadan önce onay alacaktır. Onarımdan sonra ürün, ulaşım ücreti önceden ödenmiş olarak Alıcıya geri gönderilecek ve Alıcı, onarım ve geri gönderim ücretleri (FOB Nakliyat Noktası) için faturalanacaktır.

**BU GARANTİ, ALICININ TEK VE YALNIZ KENDİSİNE TANINAN ÇÖZÜM HAKKI OLUP, PAZARLANABİLİRLİK VE BELLİ BİR AMACA UYGUNLUK GİBİ İMA EDİLEN GARANTİLER DE DAHİL, ANCAK BUNLARLA SINIRLI OLMAKSIZIN AÇIK VEYA İMA EDİLEN DİĞER TÜM GARANTİLERİN YERİNE GEÇER. FLUKE, HERHANGİ BİR NEDEN VEYA TEORİ SONUCU OLUŞAN ÖZEL, DOLAYLI, ARIZİ VEYA TESADÜFİ VERİ KAYBI DA DAHİL, HİÇBİR KAYIP VE ZARARDAN SORUMLU TUTULAMAZ.**

Bazı ülke ve eyaletler, ima edilen bir garanti maddesinin sınırlandırılmasına ya da tesadüfi veya sonuçsal zararların sınırlandırılması veya kapsam dışı bırakılmasına izin vermediğinden, bu garantinin sınırlandırılması veya kapsam dışında bırakılması, her alıcı için geçerli olmayabilir. Bu Garantinin herhangi bir maddesi bir mahkeme veya yargı konusunda yetkili başka bir karar organı tarafından geçersiz veya yürürlüğe konamaz olarak kabul edildiğinde, bu uygulama, diğer hükümlerin geçerlik ve uygulanabilirliğini etkilemeyecektir.

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**Eksiksiz çalıştırma talimatları için, ekteki CD'de yer alan Kullanım Kılavuzuna başvurun.**

(Turkish)

## OGRANICZONA GWARANCJA I OGRANICZENIE ODPOWIEDZIALNOŚCI

Każdy produkt firmy Fluke posiada gwarancje na brak usterek materiałowych i produkcyjnych w warunkach normalnego użytkowania i konserwacji. Okres gwarancji obejmuje dwa lata i rozpoczyna się w dniu wysłania produktu. Części, naprawy produktu oraz serwisowanie są objęte gwarancją przez 90 dni. Niniejsza gwarancja obejmuje jedynie oryginalnego nabywcę lub użytkownika końcowego będącego klientem autoryzowanego sprzedawcy firmy Fluke i nie obejmuje bezpieczników, jednorazowych baterii lub żadnych innych produktów, które, w opinii firmy Fluke, były używane niezgodnie z ich przeznaczeniem, modyfikowane, zaniedbane, zanieczyszczone lub uszkodzone przez przypadek lub w wyniku nienormalnych warunków użytkowania lub obsługi. Firma Fluke gwarantuje zasadnicze działanie oprogramowania zgodnie z jego specyfikacjami funkcjonalności przez 90 dni oraz, że zostało ono prawidłowo nagrane na wolnym od usterek nośniku. Firma Fluke nie gwarantuje, że oprogramowanie będzie wolne od błędów lub że będzie działać bez przerwy.

Autoryzowani sprzedawcy firmy Fluke przedłużą niniejszą gwarancję na nowe i nieużywane produkty jedynie dla swoich klientów będących użytkownikami końcowymi, jednak nie będą posiadać uprawnień do przedłużenia obszerniejszej lub innej gwarancji w imieniu firmy Fluke. Wsparcie gwarancyjne jest dostępne jedynie w przypadku, gdy produkt został zakupiony w autoryzowanym punkcie sprzedaży firmy Fluke lub Nabywca zapłacił odpowiednią cenę międzynarodową. Firma Fluke rezerwuje sobie prawo do zafakturowania na Nabywcę kosztów importu części do naprawy/wymiany w przypadku, gdy produkt nabyty w jednym kraju zostanie oddany do naprawy w innym kraju.

Zobowiązania gwarancyjne firmy Fluke są ograniczone, według uznania firmy Fluke, do zwrotu kosztów zakupu, darmowej naprawy lub wymiany wadliwego produktu, który zostanie zwrócony do autoryzowanego centrum serwisowego firmy Fluke przed upływem okresu gwarancyjnego.

Aby skorzystać z usługi gwarancyjnej, należy skontaktować się z najbliższym autoryzowanym centrum serwisowym firmy Fluke w celu uzyskania zwrotnej informacji autoryzacyjnej, a następnie przesłać produkt do tego centrum serwisowego wraz z opisem problemu, zwrotną kopertą ze znaczkami oraz opłaconym ubezpieczeniem (miejsce docelowe FOB). Firma Fluke nie jest odpowiedzialna za wszelkie uszkodzenia powstałe w czasie transportu. Po naprawie gwarancyjnej produkt zostanie zwrócony Nabywcy przy wcześniejszej opłaconym transporcie (miejsce docelowe FOB). Jeśli firma Fluke dojdzie do wniosku, że usterka została spowodowana przez zaniedbanie, niewłaściwe użytkowanie, zanieczyszczenie, modyfikacje lub nienormalne warunki użytkowania lub obsługi, łącznie z przepięciami spowodowanymi użytkowaniem urządzenia w środowisku przekraczającym jego wyszczególnione zakresy pracy lub normalne zużycie części mechanicznych, firma Fluke zapewni szacunkowe wartości kosztów naprawy i uzyska upoważnienie przed rozpoczęciem pracy. Po zakończeniu naprawy, produkt zostanie zwrócony Nabywcy przy wcześniejszej opłaconym transporcie i Nabywca zostanie obciążony kosztami naprawy i transportu zwrotnego (punkt wysłania FOB).

**NINIEJSZA GWARANCJA STANOWI JEDYNE I WYŁĄCZNE ZADOŚĆUCZYNIENIE DLA NABYWCY W MIEJSCIE WSZYSTKICH INNYCH GWARANCJI, WYRAŹNYCH LUB DORÓZUMIANYCH, OBEJMĄCYCH, ALE NIE OGRANICZONYCH DO ŻADNEJ DORÓZUMIANEJ GWARANCJI ZBYWALNOŚCI LUB ZDATNOŚCI DO DANEGO CELU. FIRMA FLUKE NIE BĘDZIE ODPOWIEDZIALNA ZA ŻADNE SPECJALNE, POŚREDNIE, PRZYPADKOWE LUB NASTĘPUJĄCE STRATY, ŁĄCZNIE Z UTRATĄ DANYCH, WYNIKAJĄCE Z JAKIEJKOLWIEK PRZYCZYNY LUB TEORII.**

Ponieważ niektóre kraje lub stany nie zezwalają na ograniczenie terminu dorozumianej gwarancji lub wyłączenia, lub ograniczenia przypadkowych, lub następujących strat, ograniczenia i wyłączenia z niniejszej gwarancji mogą nie mieć zastosowania dla każdego nabywcy. Jeśli którykolwiek z przepisów niniejszej Gwarancji zostanie podważony lub niemożliwy do wprowadzenia przez sąd lub inny kompetentny organ decyzyjny odpowiedniej jurysdykcji, nie będzie to mieć wpływu na obowiązywanie wszystkich innych przepisów niniejszej Gwarancji.

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Aby zarejestrować produkt przez Internet, proszę przejść do witryny pod adresem <http://register.fluke.com>.

**Szczegółowe procedury użytkowania zawiera Instrukcja obsługi, znajdująca się na dołączonym dysku CD.**

(Polish)

## OMEZENÁ ZÁRUKA A OMEZENÍ ZODPOVĚDNOSTI

Firma Fluke garantuje, že každý její výrobek je prost vad materiálu a zpracování při normálním použití a servisu. Záruční doba je dva roky a začíná datem expedice. Díly, opravy produktů a servis jsou garantovány 90 dní. Tato záruka se vztahuje pouze na původního kupujícího nebo koncového uživatele jako zákazníka autorizovaného prodejce výrobků firmy Fluke a nevztahuje se na pojistky, jednorázové baterie ani jakýkoliv produkt, který podle názoru firmy Fluke byl použit nesprávným způsobem, pozměněn, zanedbán, znečištěn nebo poškozen v důsledku nehody nebo nestandardních podmínek při provozu či manipulaci. Firma Fluke garantuje, že software bude v podstatě fungovat v souladu s funkčními specifikacemi po dobu 90 dnů a že byl správně nahrán na nepoškozené médium. Společnost Fluke neručí za to, že software bude bezporuchový a že bude fungovat bez přerušení.

Autorizovaní prodejci výrobků firmy Fluke mohou tuto záruku rozšířit na nové a nepoužité produkty pro koncové uživatele, ale nemají oprávnění poskytnout větší nebo odlišnou záruku jménem firmy Fluke. Záruční podpora se poskytuje, pouze pokud je produkt zakoupen v autorizované prodejně firmy Fluke anebo kupující zaplatil příslušnou mezinárodní cenu. Firma Fluke si vyhrazuje právo fakturovat kupujícímu náklady na dovezení dílů pro opravu nebo výměnu, pokud je produkt předložen k opravě v jiné zemi, než kde byl zakoupen.

Povinnosti firmy Fluke vyplývající z této záruky jsou omezeny, podle uvážení firmy Fluke, na vrácení nákupní ceny, opravu zdarma nebo výměnu vadného produktu vráceného autorizovanému servisu firmy Fluke v záruční době.

Nárokujete-li záruční opravu, obraťte se na nejbližší autorizované servisní středisko firmy Fluke pro informace o oprávnění k vrácení, potom do servisního střediska zašlete produkt s popisem potíží, s předplaceným poštovním a pojištěním (vyplaceně na palubu v místě určení). Firma Fluke nepřebírá riziko za poškození při dopravě. Po záruční opravě bude produkt vrácen kupujícímu, dopravně předplaceno (vyplaceně na palubu v místě určení). Pokud firma Fluke rozhodne, že porucha byla způsobena zanedbáním, špatným použitím, znečištěním, úpravou, nehodou nebo nestandardními podmínkami při provozu či manipulaci, včetně přepětí v důsledku použití napájecí sítě s jinými vlastnostmi, než je specifikováno, nebo normálním opotřebením mechanických komponent, firma Fluke před zahájením opravy sdělí odhad nákladů na opravu a vyžádá si souhlas. Po opravě bude produkt vrácen kupujícímu, dopravně předplaceno a kupujícímu bude účtována oprava a náklady na zpáteční dopravu (vyplaceně na palubu v místě expedice).

TATO ZÁRUKA JE JEDINÝM A VÝHRADNÍM NÁROKEM KUPUJÍCÍHO A NAHRAZUJE VŠECHNY OSTATNÍ ZÁRUKY, VÝSLOVNÉ NEBO IMPLICITNÍ, VČETNĚ, ALE NIKOLI VÝHRADNĚ, IMPLICITNÍCH ZÁRUK OBCHODOVATELNOSTI NEBO VHODNOSTI PRO URČITÝ ÚČEL. FIRMA FLUKE NEODPOVÍDÁ ZA ŽÁDNÉ ZVLÁŠTNÍ, NEPŘÍMÉ, NÁHODNÉ NEBO NÁSLEDNÉ ŠKODY NEBO ZTRÁTY, VČETNĚ ZTRÁTY DAT, VZNIKLÉ Z JAKÉKOLIV PŘÍČINY NEBO PŘEDPOKLADU. Jelikož některé země nebo státy neumožňují omezení podmínek implicitní záruky ani vyloučení či omezení u náhodných nebo následných škod, omezení a vyloučení této záruky se nemusí vztahovat na všechny kupující. Je-li kterékoliv ustanovení této záruky shledáno neplatným nebo nevynutitelným soudem nebo jinou rozhodovací autoritou příslušné jurisdikce, není tím dotčena platnost nebo vynutitelnost jakéhokoliv jiného ustanovení.

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Pro registraci produktu on-line navštivte stránku <http://register.fluke.com>.

**Podrobné provozní instrukce naleznete v uživatelské příručce dodané na disku CD.**

(Czech)



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**1735**

*Getting Started*

---

## ***Introduction***

The 1735 Power Logger (the Logger) conducts voltage, current, and power studies to determine existing loads. The Logger is also a general-purpose power quality tool that reveals the quality of a voltage supply at any point in a distribution network.

To update Logger firmware, use the flash update utility included on the *1735 CD-ROM*. Firmware updates can be found at: [www.fluke.com](http://www.fluke.com).

## ***Contacting Fluke***

To contact Fluke, call one of the following telephone numbers:

- Technical Support USA: 1-800-44-FLUKE (1-800-443-5853)
- Calibration/Repair USA: 1-888-99-FLUKE (1-888-993-5853)
- Canada: 1-800-36-FLUKE (1-800-363-5853)
- Europe: +31 402-675-200
- Japan: +81-3-3434-0181
- Singapore: +65-738-5655
- Anywhere in the world: +1-425-446-5500

Or, visit Fluke's website at [www.fluke.com](http://www.fluke.com).

To register your product, visit <http://register.fluke.com>.

To view, print, or download the latest manual supplement, visit <http://us.fluke.com/usen/support/manuals>.

Address correspondence to:











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## Symbols

Table 1 lists the symbols used on the instrument and/or in this manual.

**Table 1. Symbols**

Symbol	Description
	Important information. See manual.
	Hazardous voltage.
	Earth ground.
	Double insulation.
	DC (direct current).
	Conforms to requirements of European Union.
	Canadian Standards Association is the certified body used for testing compliance to safety standards.
	Do not dispose of this product as unsorted municipal waste. Go to Fluke's website for recycling information.
	Conforms to relevant Australian Standards.
	Do not apply around or remove from HAZARDOUS LIVE conductors.
<b>CAT III</b>	IEC Overvoltage Category III CAT III equipment is designed to protect against transients in installations, such as distribution panels, feeders and short branch circuits, and lighting systems in large buildings.

## Safety Information

In this manual, a **Warning** identifies conditions and actions that pose hazard(s) to the user. A **Caution** identifies conditions and actions that may damage the Logger or the test instruments.

### Warnings

To prevent possible electrical shock or personal injury, follow these guidelines:

- Follow all safety instructions.
- Adhere to local and national safety codes. Individual protective equipment must be used to prevent shock injury where hazardous live conductors are exposed.
- The Logger may only be used and handled by qualified personnel.
- Remove all test leads from the Logger before you open the battery door. Open the Logger only to replace the rechargeable battery.
- Maintenance work must be done only by qualified service personnel.
- Use only specified current probes. If you use flexible current probes, wear suitable protective gloves or work on de-energized conductors.
- Protect the Logger against dampness, wetness, and humidity.
- Always connect voltage and current test leads to the Logger before connecting to the load.
- The plug and socket connection for the voltage lead set is designed for 600 V CAT III. The maximum voltage between outer conductor and earth potential must not exceed 600 V. With multi-phase connections, phase-phase voltage may not exceed 800 V.
- Use only the provided original or specified accessories. This includes the ac power adapter.

## Standard Equipment

The standard equipment listed in Table 2 is shipped with the Logger.

**Table 2. Standard Equipment**

Equipment	Model or Part Number
Power Logger	Fluke-1735
Battery Charger, BC1735, 115V/230V 50/60 Hz	2584895
International AC Power Plug Set For Battery Charger	2441372
FS17XX, Shielded 4-Phase Flexi Set for Models 1735, 1743, 1744, 1745 (15A/150A/1500A)	2637462
VL1735/45, Banana 4-Phase Voltage Lead Set for Fluke-1735/45	3276205
Dolphin Clip, Black	2540726
WC17XX, Color Code Wire Clips	2637481
Rechargeable Battery, NiMH 7.2V	2625171
Soft Case	1642656
<i>1735 Manual and Software CD-ROM</i> Includes: Translated manuals, PC Application Software, Firmware Upgrade Utility	2583487
<i>1735 Getting Started Manual</i>	3611908
USB cable Type A - Type B mini	3671726

## **1735 Manual and Software CD-ROM**

The accompanying *1735 CD-ROM* contains software and additional product information, including:

- International Users Manuals. The Users Manual contains complete usage instructions for the Logger.
- *Power Log* PC software and Users Manual. *Power Log* is a simple application designed to help you get the most from the Logger. Follow the directions on the CD-ROM to install the software.
- *1735 Upgrade Utility* for future Logger firmware upgrades
- USB Drivers

## **Line Power or Battery Mode**

The Logger operates continuously with the provided charging adapter or for several hours with the built-in battery. The battery eliminates possible power interruptions during logging sessions and provides operating power during handheld troubleshooting and signal analysis.

When you operate the Logger with the ac adapter, the battery is automatically charged. On the display, the symbol for “plugged-in” or battery is displayed accordingly.

When LO-BAT is indicated, attach the ac adapter to recharge the battery. It requires about 4 hours to recharge a fully-discharged battery. The Logger’s automatic charging circuit makes it impossible to over charge the battery.

## **Instrument Familiarity**

### *Note*

*Charge the battery before operating the Logger for the first time or use the provided charging adapter.*

## **Current Probes**

Fluke flexi-sets or current clamps are automatically detected by the Logger when the Logger is turned on. If you change current probes, turn the Logger off and on again so the Logger can recognize the new probe.

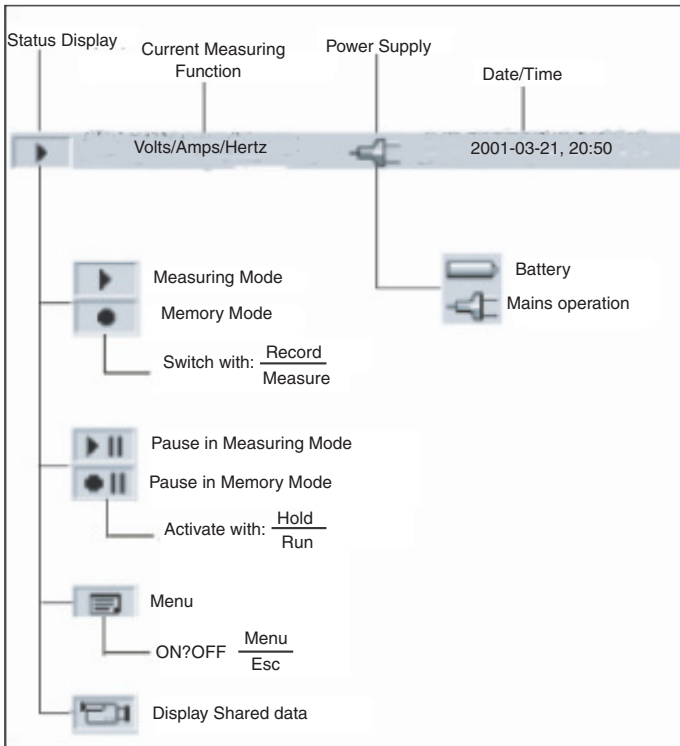
## Control Elements, Display

This section familiarizes you with the display and the controls.

Turn the Logger on by turning the rotary switch clockwise. The display shows the selected measuring function.

### Display Symbols

Figure 1 shows the display symbols used by the Logger.



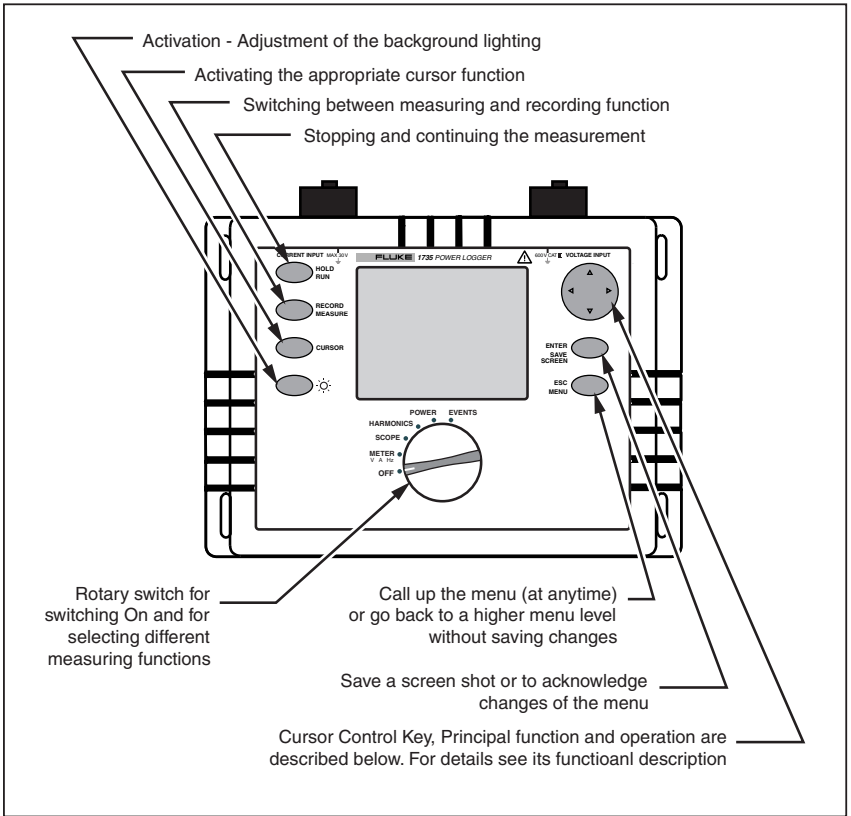
edx004.eps

Figure 1. Display Symbols



**Description of the Control Elements**

Figure 2 indicates the control elements of the Logger.



**Figure 2. Control Elements**

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*Note*

*The symbols used in this operating instruction ( $\triangle$ ,  $\nabla$  and  $\triangleleft$ ,  $\triangleright$ ) correspond to the respective directions of the cursor control keys.*

**Using the SAVE and CURSOR Keys**

Pressing the ENTER/SAVE SCREEN key saves the current picture as a screenshot.

Since it is a screenshot, a saved picture cannot be modified or edited with the cursor.

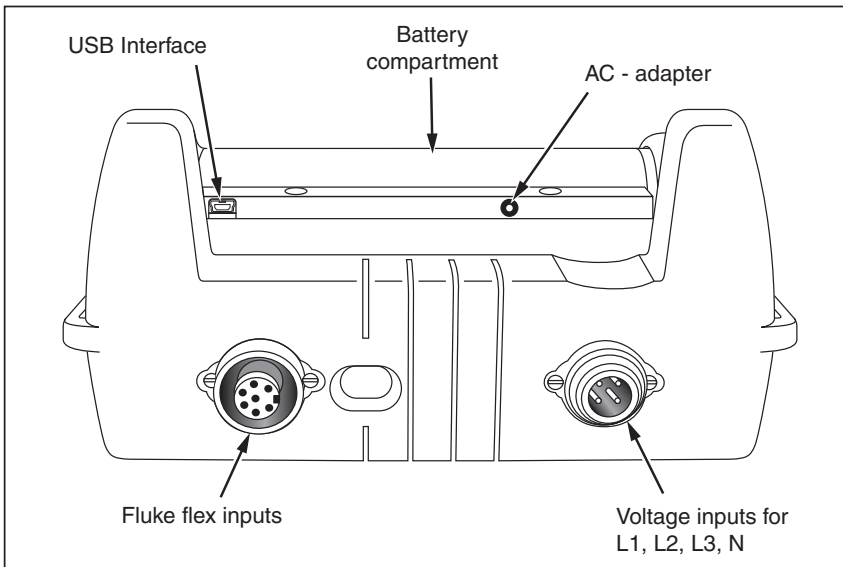
The cursor control keys (◀ ▶ △ ▽) are activated once you are in HOLD mode. CURSOR activates HOLD mode and displays a cursor (Vertical line) for detailed analysis of measurement results.

Pressing CURSOR starts Cursor mode. Press ◀ and ▶ to move the cursor and read the current values on the display.

Screenshots can also be taken in Cursor mode.

Pressing ESC exits Cursor mode and returns to the HOLD mode. From HOLD mode, different parameters may be selected and Cursor mode may be re-entered by pressing CURSOR.

## Connectors



edx006.eps

**Figure 3. Power Logger Connectors**

## **USB Interface**

The USB interface is used for communication with a PC. Use *Power Log* software (included) to download and analyze logged data. This interface is also used for updating firmware using the *1735 Upgrade Utility*. Refer to “Installing the USB Driver”.

## **Maintenance**

### **⚠⚠ Warnings**

**To prevent possible electric shock or personal injury, maintenance work must be done only by qualified service personnel.**

When used correctly, the Logger requires very little maintenance. If necessary, see [www.fluke.com](http://www.fluke.com) for locations and contact information of Fluke Service Centers worldwide. As an additional service, Fluke offers regular examination and calibration of the Logger.

## **Cleaning**

### **⚠ Caution**

**To prevent damage to the Logger, do not use abrasives or solvents on this instrument.**

Periodically clean the Logger by wiping it with a damp cloth, mild soap may be used.

## **Storage**

The battery should be charged at least once every six months when the Logger is stored or not used over long periods.

## **Measuring Functions**

### **Overview**

The following information provides an overview of each rotary switch position.

### **Meter Volts / Amps / Hz**

This function displays the voltage and current values at the same time, plus the frequency and the neutral-conductor current. You can also use this measuring

function to get an overview of these values before you analyze the signal in detail in the other functions.

### Scope

Scope shows the voltages, currents and the  $\varphi$  (phase) angle in oscilloscope representation as well as their instantaneous values at the cursor position. With this function you get a clear picture of current and voltage waveforms and their distortions.

### Harmonics

Every signal can be split into an infinite number of sine waves of different frequency and amplitude. The contribution of each of these individual sine waves is represented in a bar chart up to the 50<sup>th</sup> harmonic. The smaller the harmonics are (starting from the 2<sup>nd</sup> harmonic, the 1<sup>st</sup> is the fundamental) the better the quality of the power network.

### Power

This function indicates the values of the transferred power. At the same time you can measure active power, reactive power, apparent power, distortion power and the appropriate power factor. You can also view the active and reactive power energy.

#### *Note*

*Demand can be logged by setting the averaging period in the Setup menu to either 10 or 15 minutes, which produces a record of consecutive averages. This is called block demand.*

### Events

Events are voltage dips, swells and interruptions. This measuring mode automatically records all events for later evaluation. The threshold values for starting the recording are freely configurable in the menu.

## Connecting the Logger to the Network

### ⚠ ⚠ Warning

To prevent the risk of electric shock, when connecting current circuits, the corresponding test leads must first be connected to the Logger and then to the load.

To prevent shock or personal injury, keep fingers behind the tactile barrier, see Figure 4.

#### Note

When using either flexi-probes or current clamp sets, make sure the arrow on the current probe points towards the load.

Use the original cables only for connecting the current probes and the voltages to the Logger. If these are damaged do not use them. Before connecting to the load, make sure that all plugs are connected correctly to the Logger and locked, in order to prevent contact with live conductors.

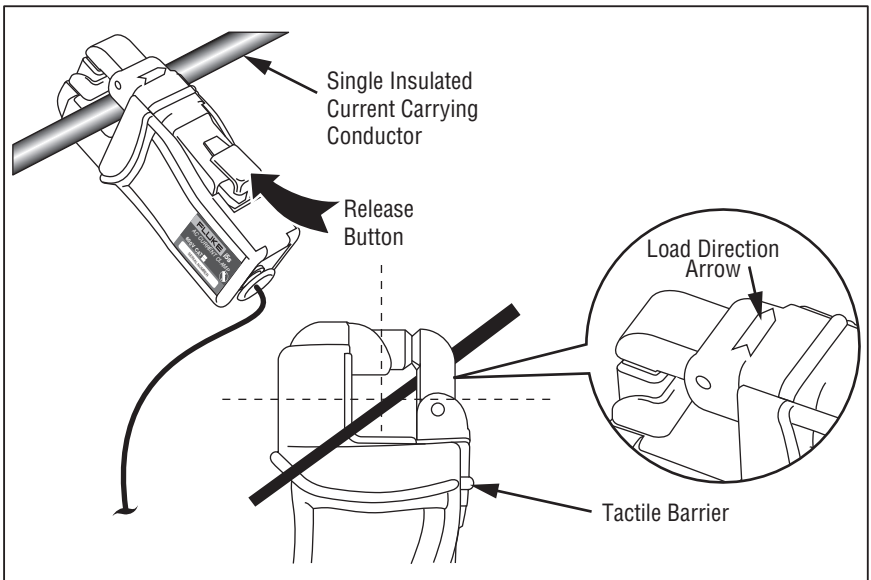


Figure 4. Using the Optional Microclamps

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### Color Coding Wire Clips

The Logger includes a set of color clips that you can attach to the test leads. These help you keep track of which current probe lead and voltage lead belongs to which phase. The large clips are for the current probe leads and the small clips are for the voltage leads. Use the plastic rod tool to help you attach the clips.

### Single and Split-Phase Connections

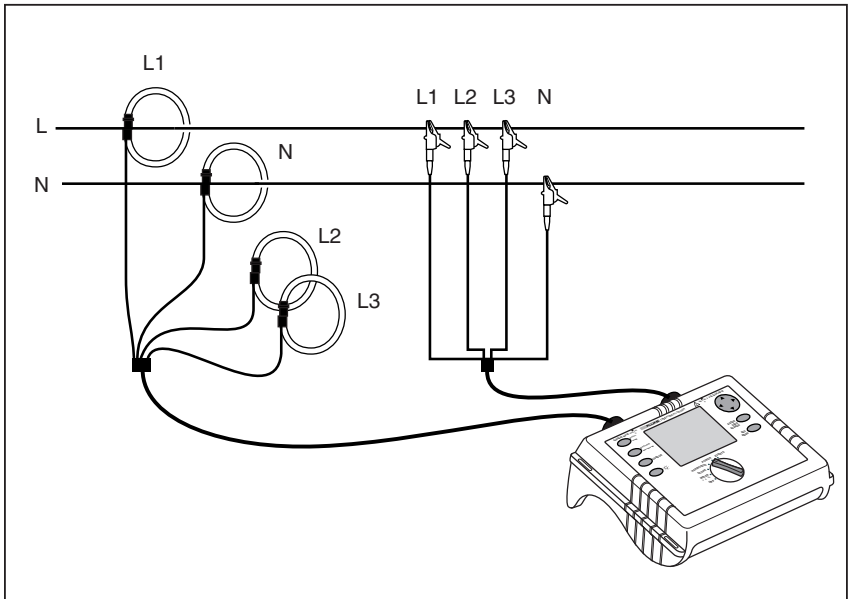
For Single Phase + Neutral, refer to Figure 5 and connect the leads as follows:

Voltage:

Network	Test Leads
Line	A (L1)
Line (same)	B (L2)
Line (same)	C (L3)
N	N

Current:

Network	Test Leads
L1	A (L1)
Not connected	B (L2)
Not connected	C (L3)
N	N



edx040.eps

**Figure 5. Single Phase Connections**

### **Split Phase Connections**

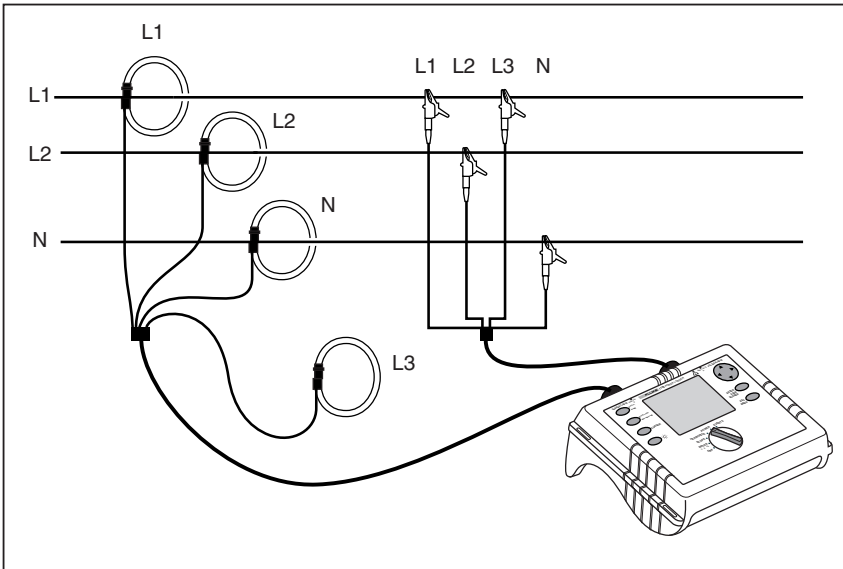
For Split Phase, the Neutral is center-tapped and there are two hot legs which correspond to A and B test leads. AB is the voltage from phase to phase, which is twice that of each individual hot leg. Refer to Figure 6 and connect the leads as follows:

Voltage:

<b>Network</b>	<b>Test Leads</b>
Line 1	A (L1)
Line 2	B (L2)
Line 1	C (L3)
N	N

Current:

Network	Test Leads
A (L1)	A (L1)
B(L2) Line 1	B (L2)
Not connected Neutral	C(L3)
N	N



edx041.eps

Figure 6. Split Phase Connections



### Three-Phase Power Network Connections

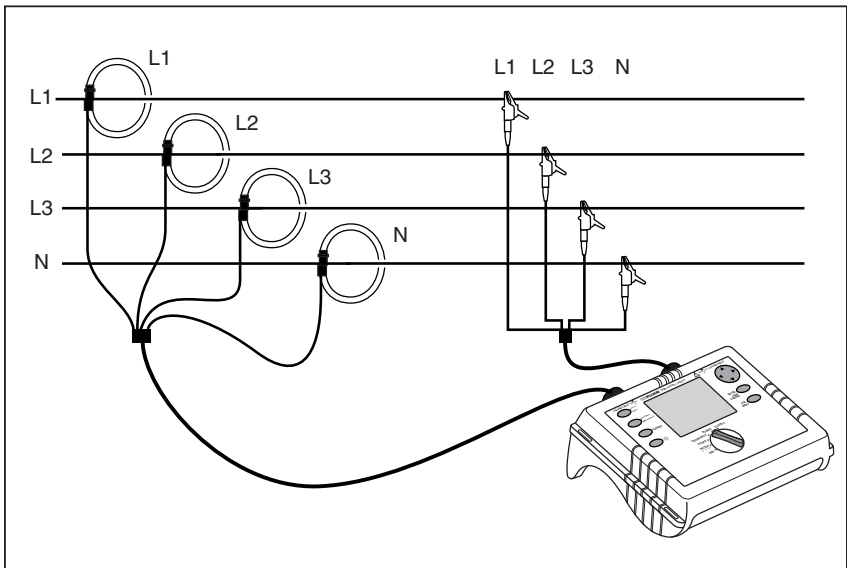
In order to measure all phases in the three-phase power network with the Logger, attach the Logger to the measuring power network according to the following (see “Power” for further details):

Voltage:

Mains Line	Test Leads
A (L1)	A (L1)
B (L2)	B (L2)
C (L3)	C (L3)
N	N

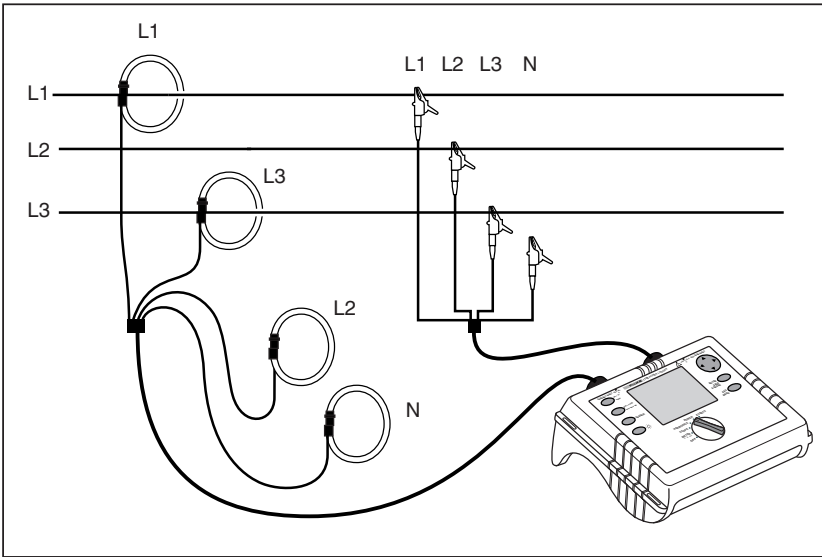
Current:

Mains Line	Test Leads
A (L1)	A (L1)
B (L2)	B (L2)
C (L3)	C (L3)
N	N



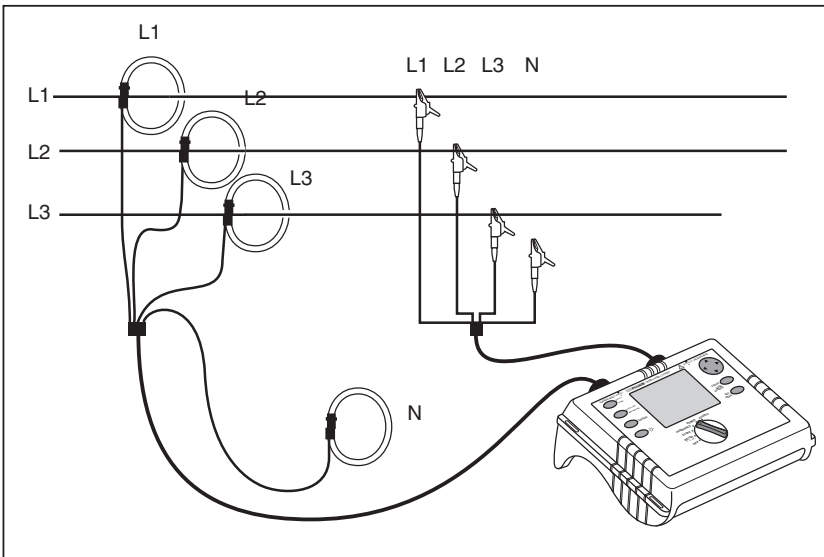
**Figure 7. Three-Phase Wye Connections**

edx042.eps



edx043.eps

**Figure 8. Three-Phase Delta  $\Delta$  Connections-Blondel (Aron, Two-Element Delta)**



edx046f.eps

**Figure 9. Three-Phase Delta  $\Delta$  Connections-Blondel (Aron, Three-Element Delta)**

## **Volts / Amps / Hertz**

Select Meter with the rotary switch.

In this mode you can measure values for each phase (A, B, C) of

- Voltage (V)
- Current (I)
- Frequency (F)
- Neutral-conductor current (In)

You can determine and store the values. It is also possible to log the values with the logging function.

Measurement or calculation of the neutral-conductor current is optional.

## **Logging**

In Logging mode, the following values are recorded for every phase (A, B, C)

- Voltage (V) and
- Current (I) and the value of the
- Frequency (F)

These values can be recorded in the instrument, downloaded and evaluated with *Power Log* software.

## Measurement

If you select this measuring mode you will see the following display:

▶ Volts/Amps/Hertz 2006-03-02, 11:08		
↕ L123	An	0.06 A
	50.00 Hz	
	V rms	A rms
L1	109.9	10.32
L2	109.9	10.43
L3	109.9	10.31

edx024.bmp

- △▽ Use this switch to get the following values:
- minimum of values
- ◁▷ - maximum of values and
- frequency or neutral-conductor current

**Hold/Run** “freezes” the actual value and the measurement is stopped or started again.

## Save

**Save/Enter** yields a screenshot and stores the picture of the display in the memory location subsequently shown.

## Logging Function

**Record/Measure** starts the logging function or you can get back into the measuring mode. Before the start, the maximum logging time is indicated and you can change this value with **Esc** followed by entering using **CURSOR**.

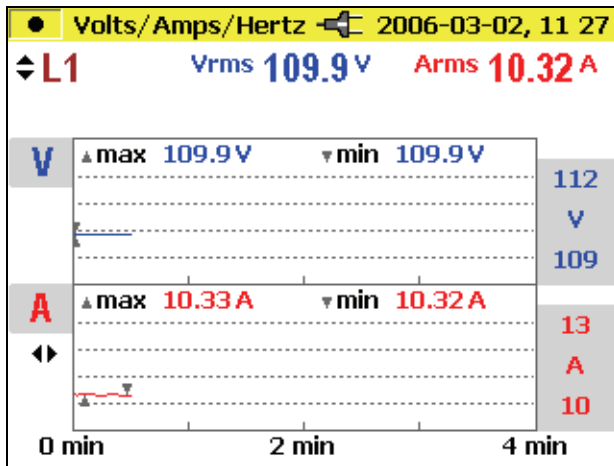
Changes in the averaging time cause corresponding changes in the logging time of the measurement (double averaging time = double logging time).

When the logger graphics reach the screen margin during recording, a picture of this screen is saved.

The display is then deleted and the recording is continued. Up to 6 auto screens are saved in the course of a recording. The saved screenshots can be retrieved via the **View Auto Screenshots** menu.

*Note*

*Do not forget to operate the Logger with the ac adapter during logging in order to prevent shutdown caused by low battery.*



edx025.bmp

- △▽ Select between the individual phases
- ◁▷ Select between the two representation modes:
  - V and I (see fig.)
  - V and F
  - V and In

Analyzing the measured values of the recorder function:

These values can be recorded in the instrument, downloaded and evaluated with *Power Log* software.

## **Power**

Select **Power** with the rotary switch.

In this measuring mode you can get the following values for each phase (A, B, C):

- Power (P) in W (for each phase and its sum  $P_{tot}$ ).
- Reactive power (Q) in var (for each phase and its sum  $Q_{tot}$ ).
- Apparent power (S) in VA (for each phase and its sum  $S_{tot}$ ).
- Distortion power (D) in VA (for each phase and its sum  $D_{tot}$ ).
- Power factor (PF) and the average PF for the three phases.
- $\cos \varphi$  and the average  $\cos \varphi$  for each of the three phases.
- Active energy (EP) in kWh.
- Reactive energy (EQ) in kVAR.

### *Note*

*When operating in DELTA connected modes, the Logger will only display the  $P_{total}$ ,  $Q_{total}$ , and the related Power Factor.*

## Measurement

You can determine the instantaneous values and store them. You can also record the values with the recorder function.

If you select this measurement mode the following display is shown:

▶ Power		2006-03-02, 13 18	
↕ L <sup>123</sup>	8.378 <sub>tot</sub>	12.44 <sub>tot</sub>	0.672 <sub>tot</sub>
	kW	kVA	PF
L1	2.780	4.128	0.673
L2	2.826	4.193	0.673
L3	2.772	4.120	0.672

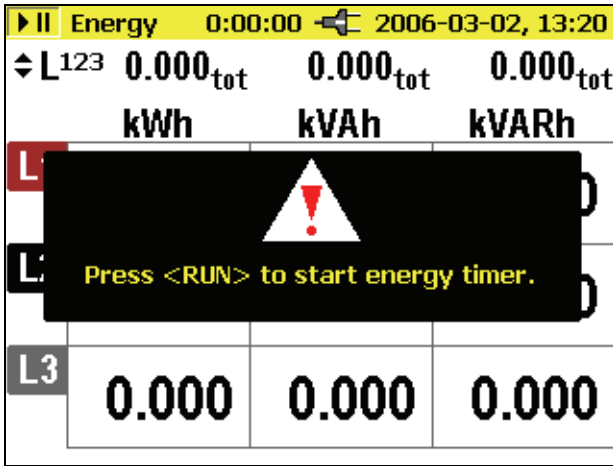
edx026.bmp

△▽ Switch between the individual phases (detailed view: min- max-values and distorted power and Energy values.

◁▷ Switch between the representation modes:

- P, S and PF
- P, S and Q
- P, S and D
- P, S and EP
- P, S and EQ
- P, S and cosφ

When △▽ are pressed, the accumulated energy function becomes active, this must be acknowledged by pressing **RUN** to activate the accumulation timer.



edx027.bmp

The accumulation time is indicated at the top of the measurement display.

A further press of  $\triangle\nabla$  gives a detailed view of the individual phase values.

Capacitor or inductance symbols issue information about capacitive or inductive reactive power.

**Hold/Run** functionality is explained earlier in this manual.

#### *Note*

*In the individual representation of A or B or C, the active and reactive energy cannot be selected.*

### **Three-Phase Power Theory**

By switching the Power Network setting from wye to delta, the voltages and currents  $I_{L1}$ ,  $I_{L3}$ ,  $I_{L2}$  are calculated, measured and displayed.

When calculating the power, selecting the delta connection will use the two-wattmeter method (Blondel or Aron) measuring circuit for the calculation.

The neutral conductor may be connected; however, it does not influence the measurement even in open state. If no neutral conductor is connected, a virtual “metering neutral” is established in the Logger via symmetrization resistors.



## **Logging**

Refer to “Logging Function” earlier in this manual. In the Logging (Record) mode, the following values are recorded for every phase (L1, L2, L3):

- Active power (P)
- Apparent power (S)
- Reactive power (Q)
- Power factor (PF)
- Cos phi ( $\cos\phi$ )
- Distortion power (D)
- Accumulated values (kWh, kVAh, kVARh)

These values can be recorded in the instrument, downloaded and evaluated with *Power Log* software.

## **Events**

Select **Events** with the rotary switch.

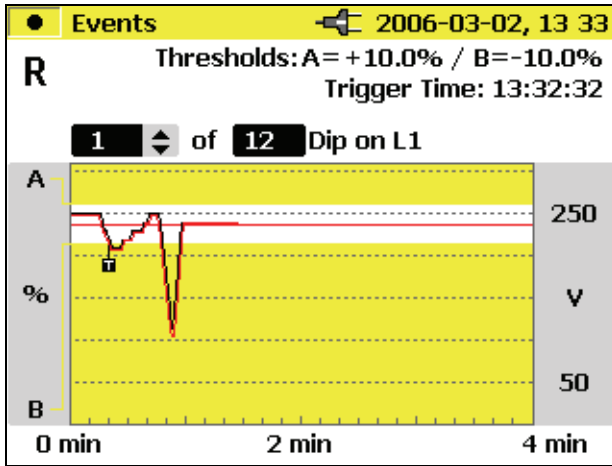
This measuring mode records the voltage of every phase (L<sub>1</sub>, L<sub>2</sub>, L<sub>3</sub>) in cases of voltage dips, swells or interruptions (recorder function).

This function exclusively works with the recorder function.

Before you start the measurement, select the desired threshold value with **Menu/Esc** (under recording adjustments). After the measurement has started the following message appears on the display.

```
. . . waiting for events
```

The Logger is now in the Trigger mode. If an event on one of the phases occurs, the recording is started automatically and lasts for 4 minutes. The MIN and MAX values of the half-cycle RMS values are shown as waves. The screenshots recorded by this method are saved as individual pictures and can be viewed later, or the data can be displayed with the *Power Log* software. A total of 999 events can be recorded. In the LC display the phase and the number of recordings are displayed.



edx029.bmp

△▽ Switch between the individual events (if there is more than one).

This is also possible if the recording has been stopped and you want to evaluate the stored events.

**Hold/Run** and **Save/Enter** functionality is explained earlier in this manual.

### Logged Events

You can download logged events using *Power Log* software.

*Power Log* software presents the event data in a variety of formats:

- graphs similar to those displayed on the instrument
- statistical format with number of events, range of duration and range of voltage
- spreadsheet format with date/time stamp, event type and duration

### Harmonics

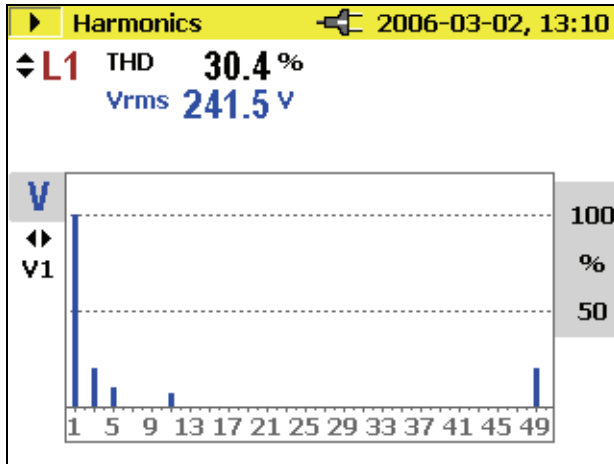
Select Harmonics with the rotary switch.

In this measuring mode you can determine the Harmonics H1 (fundamental frequency) to H50 for all phases (L1, L2, L3) of:

- Voltage (V)
- Current (I)

## Measurement

When selecting this measuring mode with the rotary switch the harmonics are immediately and clearly represented on the LC display as follows:



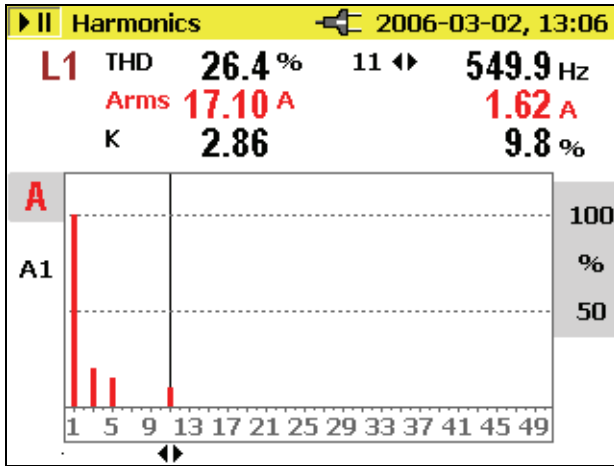
edx030.bmp

△▽ Switch between the individual phases.

◀▶ Switch between V and I.

Logging, **Save/Enter**, and **Hold/Run** functionality is explained earlier in this manual.

By pressing CURSOR, you will go into Cursor mode, where you can read additional values of the individual harmonics. With ◀▶ you can select the individual harmonics. Once the Cursor mode is activated, the scale can be changed with the △▽ from 100 %-50 % to 50 %-25 % or 10 %-5 %.



edx031.bmp

## Scope

Select Scope with the rotary switch.

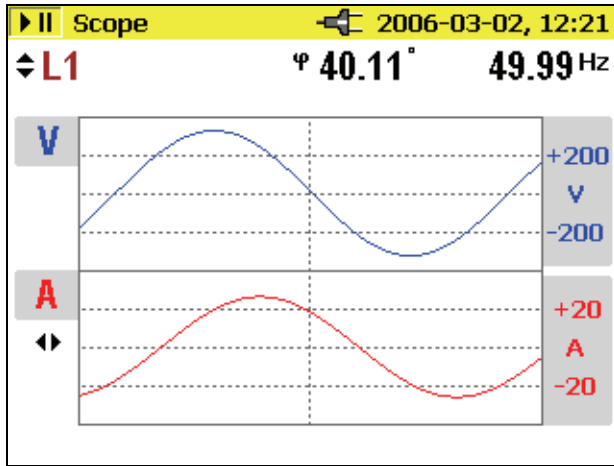
In this measuring mode you get a live picture of the waveforms of

- Voltage (V)
- Current (I)
- Angle ( $\varphi$ )

For all three phases (A,B,C, or L1, L2, L3).

## Measurement

If you select the measuring mode with the rotary switch the following figure appears on the display. The three-phase voltages and current values are plotted for the time of one period.



edx033.bmp

△▽ Switch between the individual phases or total view of all phases.

◁▷ While viewing the individual phases, the cursor can be shifted and the value at this location is displayed.

In the individual view, the  $\phi$  angle is also shown.

**Hold/Run** and **Save/Enter** functionality is explained earlier in this manual.

#### Notes

*In this mode the recorder function is not available. The angle ( $\phi$ ) describes the phase shift between first harmonic active power and first harmonic reactive power. See formula in the Measurement Theory section for more details.*

*CURSOR activates the cursor function and ◁▷ can be used to move the cursor line. △▽ can be used to select the phase A, B, C, (L1, L2, L3). In Cursor mode, instantaneous values of volts and amps are at the cursor position.*

## Power Log PC Software

*Power Log* provides data download, analysis and reporting in one simple to use package.

### Installing Power Log

Insert the supplied *1735 CD-ROM*. The main menu starts automatically (if it does not double-click on “launch.exe” in Windows Explorer to execute the program). Please follow the instructions appearing on the screen (menu):

Check [www.Fluke.com](http://www.Fluke.com) for any available new releases.

## Specifications

### General

Display:	¼ VGA Graphic Color transmissive displays 320 x 240 Pixel with additional background lighting and adjustable contrast, text and graphics in color.
Quality:	Developed, designed and manufactured according to DIN ISO 9001
Memory:	4 MB Flash memory, from this 3.5 MB for measuring data;
Interface:	USB/RS232 USB with Mini USB B socket
Sample rate:	10.24 kHz
Line frequency:	50 Hz or 60 Hz, user-selectable, with automatic synchronization

### Temperature Ranges

Working temperature range:	-10 °C to +50 °C
Storage temperature range:	-20 °C to +60 °C
Operating temperature range:	0 °C to +40 °C

#### Note

*The above terms are defined in European Standards.  
To calculate the specification at any point in the working temperature range, use the temperature coefficient below.*

Temperature coefficient:	$\pm 0.1$ % of the measured value per K.
Intrinsic error:	Refers to reference temperature, max. deviation is guaranteed for 2 years.
Operating error:	Refers to operating temperature range, max. deviation is guaranteed for 2 years.
Climatic class:	C1 (IEC 654-1) -5 °C to +45 °C, 5 % to 95 % RH, no dew
Housing:	Cyclopol shock and scratch proof thermoplast V0-type (non-flammable) with rubber protection holster

### **EMC**

Emission:	IEC 61326-1:2006 class B
Immunity:	IEC 61326-1:2006
Power supply:	NiMH battery-pack, with ac adapter (15 V to 20 V/0.8 A)
Operation time with battery:	Typical >8 h with bright backlight, >10 h with low backlight, and 24 h without backlight
Dimensions:	240 x 180 x 110 mm (6.1 x 4.6 x 2.8 in)
Weight:	1.7 kg (3.75 lb), including battery

### **Safety**

Safety:	EN/IEC 61010-1:2001 (2 <sup>nd</sup> ed.) 600 V CAT III, double or enforced insulation
Pollution Degree:	2
Protection:	IP65; EN60529 (refers only to the main housing without the battery compartment)

RMS values are measured with a 20 ms resolution.

### **V-RMS Wye Measurement**

Measuring range:	57 / 66 / 110 / 120 / 127 / 220 / 230 / 240 / 260 / 277 / 347 / 380 / 400 / 417 / 480 V AC
Intrinsic error:	$\pm(0.2$ % of measured value. + 5 digits)
Operating error:	$\pm(0.5$ % of m. v. + 10 digit)
Resolution:	0.1 V

### **V-RMS Delta Measurement**

Measuring range:	100 / 115 / 190 / 208 / 220 / 380 / 400 / 415 / 450 / 480 / 600 / 660 / 690 / 720 / 830 V AC
Intrinsic error:	$\pm(0.2$ % of m. v. + 5 digit)
Operating error:	$\pm(0.5$ % of m. v. + 10 digit)
Resolution:	0.1 V

### **A-RMS Measurement**

Flexi Sets and current probes with voltage output are supported. All current probes must correspond to 600 V / CAT III

Flexi set I ranges: 15 A / 150 A / 3000 A RMS (non-distorted sine wave)

Resolution: 0.01 A

For ranges 150 A/3000 A

Intrinsic error:  $\pm(0.5 \% \text{ of m. v. } + 10 \text{ digit})$

Operating error:  $\pm(1 \% \text{ of m. v. } + 10 \text{ digit})$

For range 15 A

Intrinsic error:  $\pm(0.5 \% \text{ of m. v. } + 20 \text{ digit})$

Operating error:  $\pm(1 \% \text{ of m. v. } + 20 \text{ digit})$

The errors of the current probes are not considered.

By using Flexi-Set:

Flexi Set measuring error:  $\pm(2 \% \text{ of m. v. } + 10 \text{ digit})$

Position influence:  $\pm(3 \% \text{ of m. v. } + 10 \text{ digit})$

CF (typical): 2.83

#### *Note*

*Error for current clamps is specified separately.*

### **Power Measurement (P, S, D)**

- Measuring range: see V RMS and A RMS measurement
- Power errors are calculated by adding the errors of voltage and current
- Additional error due to power factor PF
- Specified error x (1-IPFI)
- Maximum Range with Voltage range 830 V delta-connection and 3000 A current range is 2.490 MW

Intrinsic error:  $\pm(0.7 \% \text{ of m.v. } + 15 \text{ digit})$

Resolution: 1 kW

Operating error:  $\pm(1.5 \% \text{ of m.v. } + 20 \text{ digit})$

Typical range with Voltage range 230 V Wye connection and 150 A Current range is 34.50 KW

Intrinsic error:  $\pm(0.7 \% \text{ of m.v. } + 15 \text{ digit})$

Resolution: 1 W to 10 W

Operating error:  $\pm(1.5 \% \text{ of m.v. } + 20 \text{ digit})$

The errors of the current sensors themselves have not been considered.



#### Energy Measurement (kWh, KVAh, kVARh)

Intrinsic error:	$\pm(0.7 \% \text{ of m.v.} + \text{F variation error}^* + 15 \text{ digit})$
Resolution:	1 W to 10 W
Operating error:	$\pm(1.5 \% \text{ of m.v.} + \text{F variation error}^* + 20 \text{ digit})$
* Frequency variation error	$\pm 2 \% \text{ m.v.} + 2^* (\% \text{ maximum frequency deviation})$

#### **PF (Power Factor)**

Range:	0.000 to 1.000
Resolution:	0.001
Accuracy:	$\pm 1 \% \text{ of full scale}$

#### **Frequency Measurement**

Measuring range:	46 Hz – 54 Hz and 56 Hz – 64 Hz
Intrinsic error:	$\pm(0.2 \% \text{ of m. v.} + 5 \text{ digit})$
Operating error:	$\pm(0.5 \% \text{ of m. v.} + 10 \text{ digit})$
Resolution:	0.01 Hz

#### **Harmonics**

Measuring range:	1 to 50 <sup>th</sup> harmonic (<50 % von Vm)
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#### **Accuracy:**

Vm, Im, THDV, THDI:	According IEC 1000-4-7, class B
Vm, Im, THDV, THDI:	According IEC 1000-4-7, class B
Vm $\geq 3 \% V_n$ :	5 % V
Vm < 3 % Vn:	0.15 % Vn
Im $\geq 10 \% I_n$ :	5 % Im
Im < 10 % In:	0.5 % In
THDV:	for THD <3 % - <0.15 % at Vn for THD $\geq 3 \%$ - <5 % at Vn
THDI:	for THD <10 % - <0.5 % at In for THD $\geq 10 \%$ - <5 % at In

#### **Events**

Detection of voltage dips, voltage swells and voltage interruptions with a 10 ms resolution and measuring error of the half period sine wave of RMS.

Intrinsic error:	$\pm(1 \% \text{ of m. v.} + 10 \text{ digit})$
Operating error:	$\pm(2 \% \text{ of m. v.} + 10 \text{ digit})$
Resolution:	0.1 V

#### **Unbalance**

RMS errors see V-RMS specification.

## 1735

### Getting Started

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Phase angle error.

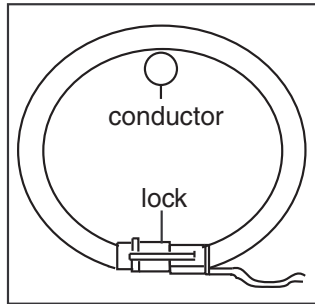
Intrinsic error:  $\pm(0.5 \% \text{ of m. v.} + 5 \text{ digit})$

Operating error:  $\pm(1 \% \text{ of m. v.} + 10 \text{ digit})$

Resolution:  $0.1^\circ$

#### Note

*When using Flexi Set please make sure to position the conductor opposite to the Flexi Set-lock (refer following figure).*



**Flexi Set-Lock**

edx039.eps]