MANUALE D’USO • USER MANUAL • BEDIENUNGSANLEITUNG • MANUAL DE USO

RAPID PRO LIMITED EDITION

Italiano · English · Deutsch · Español

MANUALE D’USO

Base documentale ufficiale: Manuale ufficiale V1.2 · sezioni IT/EN

Edizione multilingua IT/EN/DE/ES · dati tecnici invariati

UNIKS

IT

RAPID PRO LIMITED EDITION

Manuale d’uso

Italiano

UNIKS

RAPID PRO

Limited Edition

IT Manuale d'uso

EN User Manual

Uniks Srl Copyright® V1.01 www.uniks.it

ITALIANO

Download APP

Installare l' APP RAPIDPROREPORT sul vostro smart-phone per creare i Report delle vostre misure, salvare il vostro archivio di misure e scaricare il Certificato di Calibrazione.
L' APP è compatibile con sistimi iOS e Android.

Scansiona per scaricare l' APP

Download on the App Store

ANDROID APP ON Google play

2

INDICE

Pagina

INTRODUZIONE....4
DESCRIZIONE GENERALE....5
DESCRIZIONE DEL PRODOTTO....6
COLLEGAMENTI....7
MISURA DI TENSIONE E SOCKET TEST....8
ERRORI DI CABLAGGIO....9
RCD TIME (Test del tempo di intervento dei Differenziali).... 10
RCD RAMP (Test Differenziali con corrente crescente)....11
RCD AUTO (Test Differenziali in automatico)....11
LOOP (Misura dell'anello di guasto)....12
LOOP Z LPE (Resistenza Globale di Terra)....13
LOOP Z LN (Impedenza di Linea)....14
Har ARMONICHE DI TENSIONE....15
MEM Memoria / REPORT....15
APP RAPIDPROREPORT....16
EVSE TEST....18
DATI TECNICI....19
SPECIFICHE TECNICHE....20
GARANZIA....23
ASSISTENZA....23

ITALIANO

INTRODUZIONE

Congratulazioni per l'acquisto di **RAPID PRO Limited Edition**, il multifunzione tascabile per la verifica degli impianti elettrici, prodotto in soli 500 esemplari numerati **MADE IN ITALY.**
Rapid Pro LE rappresenta una nuova frontiera negli strumenti di verifica per impianti elettrici e, grazie al brevetto **UNIKS Digitaloop™**, si è evoluto per includere misure in ambito civile e industriale. Oltre a essere utilizzato come multimetro in TRMS e Test Prese, consente di effettuare prove di sicurezza elettrica (RCD, LOOP L-Pe - L-N) in conformità ai requisiti della norma **CEI 64-8** e alle norme **IEC61557-3 e IEC61557-6.**
È dotato di un display TFT da 1,77", di memoria interna e di un SUPERCAP per alimentarlo anche quando scollegato dalla rete elettrica.

PRECAUZIONI E MISURE DI SICUREZZA

ITALIANO

⚠ Attenzione: Attenersi alle istruzioni riportate nel manuale; un uso improprio potrebbe causare danni allo strumento o creare situazioni pericolose per l'operatore.

⚠ Pericolo Alta Tensione: rischi di shock elettrici

Lo strumento è stato progettato in conformità alla IEC/EN61010-1, relativa agli strumenti di misura elettronici. Per evitare di danneggiare lo strumento, eseguire le procedure descritte nel presente manuale.

- Non effettuare misure in ambienti umidi.
- Non effettuare misure in presenza di gas o materiali esplosivi, combustibili o in ambienti polverosi.
- Evitare contatti con il circuito in esame se non si stanno effettuando misure. Evitare contatti con parti metalliche esposte, con terminali di misura inutilizzati, ecc.
- Non effettuare alcuna misura qualora si riscontrino anomalie nello strumento come deformazioni, rotture, fuoriuscite di sostanze, mancate visualizzazioni a display, ecc.

⚠ **La massima tensione AC in ingresso è 440V . Non misurare tensioni che eccedono i limiti indicati in questo manuale e stampati sullo strumento. Il superamento dei limiti di tensione potrebbe causare shock elettrici all'utilizzatore e danni allo strumento.**

⚠ **Procedura di RESET del prodotto: Tenere premuto per due secondi contemporaneamente il tasto FUNC e ▶ attendere fino al suono. Questa procedura ripristinerà il Rapid Pro MAX allo stato di fabbrica e cancellerà tutta la memoria. Utilizzare questa procedura solo in caso di malfunzionamento.**

DESCRIZIONE GENERALE

Il RAPID PRO LIMITED EDITION esegue le seguenti misure:

1. Tensione L-N in TRMS o Tensione Trifase con Accessorio
2. Frequenza della Tensione di rete
3. Test Differenziali (RCD) A, AC e F fino a 1A
4. Test Differenziali Generali e Selettivi
5. Corrente di Prova IΔn 30mA, 100mA, 300mA, 500mA, 650mA e 1A
6. Modalità di test RCD AUTO.
7. Modalità a RAMPA A, AC e F solo 30mA
8. Misura della Tensione di Contatto Uc
9. Z LOOP (Resistenza Globale di Terra nei sistemi TT e impedenza L-Pe nei TN)
10. Z LINE (Impedenza L-N o L-L Trifase)
11. Corrente di Cortocircuito presunta Isc
12. Armoniche di Tensione fino alla 50th
13. THD% di Tensione (Distorsione Armonica di rete)
14. Frequenza fondamentale e di tutte le armoniche
15. Socket Test (cablaggio della presa)

ITALIANO

Ciascuna di queste funzioni può essere selezionata tramite un apposito tasto. Sono inoltre presenti tasti funzione per cambiare i parametri delle misure o scorrere le armoniche. Lo strumento è inoltre dotato della funzione di **AUTO ALIMENTAZIONE** tramite un **SUPERCAP** interno che permette di mantenere acceso il RAPID PRO LE anche quando non è collegato alla rete.
Normalmente la carica può durare circa 45 secondi quando il SUPER CAP è completamente carico.
Questa funzione permette di leggere il valore del tempo di intervento del differenziale dopo lo scatto oppure di poter leggere comodamente i valori a display scollegando lo strumento dalla rete.
Tutti gli esiti delle misure sono indicate con risultato OK e NO OK attraverso una barra **VERDE** o **ROSSO** al centro del Display.
La funzione Socket Test individua i problemi più comuni del cablaggio come la mancanza della connessione alla **TERRA (NO PE)** o la FASE e NEUTRO invertiti.
L' errore di FASE e NEUTRO invertito verrà indicato nel Display VOLT e il RAPID PRO LE vi permetterà di eseguire tutte le misure anche senza invertire lo strumento nella presa.
Continuerà ad essere indicato anche nelle misure di RCD e LOOP con il simbolo

La funzione Auto Alimentazione è disabilitata nelle funzioni LOOP L-Pe e LOOP Linea L-N

DESCRIZIONE DEL PRODOTTO

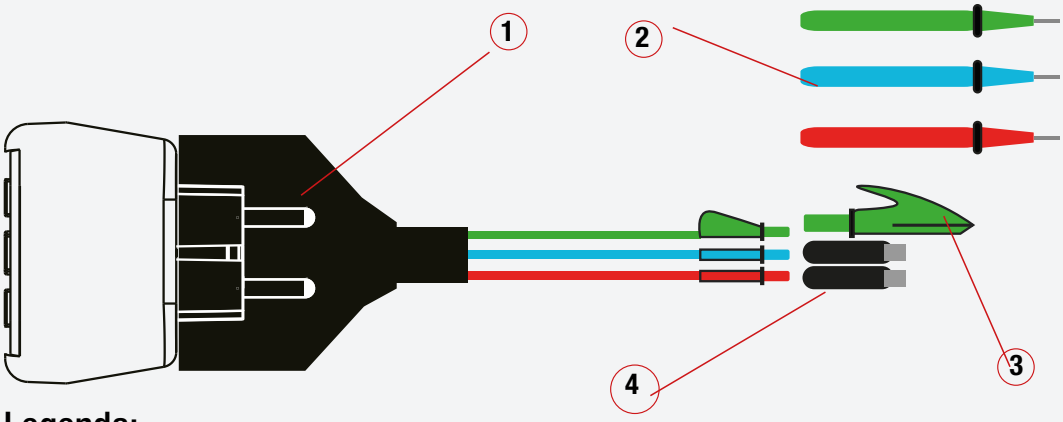
Legenda:

1. Vetrino antigraffio
2. Display TFT 1,77"
3. Tasto FUNZIONI
4. Tasto TEST
5. Tasto Selezione
6. Tasto Selezione
7. Spina schuko EU

ITALIANO

Tasto FUNC permette di selezionare la misura da eseguire. Il display mostrerà le seguenti funzioni: Socket Test / VOLT - LOOP - RCD - ARMONICHE (Har) - MEMORIA (MEM) I Tasti ◀▶ permettono di impostare ogni misura con i rispettivi parametri, navigare all'interno della memoria e scorrere le Armoniche di Tensione dalla fondamentale alla 49th.Il Tasto **ROSSO** permette di eseguire la misura di RCD e LOOP o di forzare lo spegnimento quando il RAPID PRO LE è disconnesso dalla rete.

Accessori per utilizzo sul Quadro Elettrico

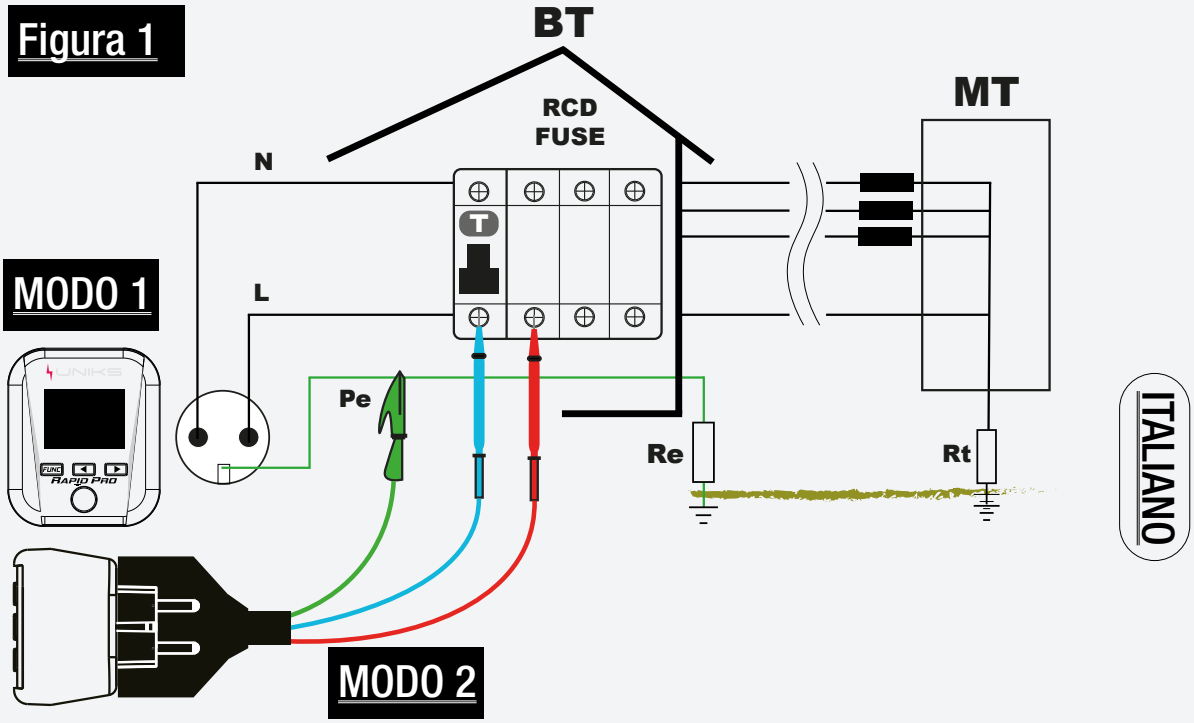


Legenda:

1.	Cavo Adattatore per Quadro Elettrico	Cod. RPX-ADAP
2.	3 puntali CAT IV 600V CAT III 1000V	Cod. RPX-PUNT3
3.	Coccorillo	Cod. RPX-CLIP
4.	2 Puntali Magnetici	Cod. RPX-PUNT
5.	Borsa Trasporto	Cod. RPX-BAG

COLLEGAMENTI

Il Rapid Pro LE può essere utilizzato sia in ambito CIVILE che INDUSTRIALE per le verifiche degli impianti elettrici in sistemi TT e TN. Ci sono due MODI per le connessioni mostrate in Fig.1



MODO 1

Questo modo permette una connessione diretta alle prese degli impianti elettrici nei sistemi TT e TN. Inserire il RAPID PRO LE nella presa e iniziare a certificare l'impianto elettrico o a testare il cablaggio delle prese. Adatto per sistemi Monofase.

MODO 2

Questo modo permette una connessione tramite accessorio per Quadri Elettrici nei sistemi TT e TN e permette di utilizzare tutte le misure direttamente nel quadro elettrico. Adatto per sistemi Monofase e Trifase.

1. Collegare l'adattatore al RAPID PRO LE
2. Collegare il cavo **VERDE** al Coccodrillo e sempre al PE nel quadro elettrico
3. Collegare prima il Puntale **Blue** al morsetto di Neutro e successivamente il **Rosso** al morsetto di Fase.
4. E' Possibile sostituire i Puntali con gli adattatori Magnetici.
5. Iniziare il Test
6. Nel caso siano presenti dispersioni di corrente verso terra o tensione tra Neutro e PE elevata è consigliato collegare prima il Neutro poi la Fase e successivamente il PE per evitare lo scatto del differenziale durante i collegamenti. Consigliamo di controllare l'impianto elettrico con una pinza per correnti di dispersione.

⚠ **Quando si usa l'adattatore per quadri elettrici per evitare scosse elettriche collegare sempre il cavo Verde alla messa a Terra (PE) dell'impianto.**

⚠ **Quando si usano i puntali magnetici verificare che le connessioni ai morsetti siano ben fissate e che non ci sia presenza di ossido o ruggine nei contatti per evitare che la misura risulti errata.**

MISURA DI TENSIONE E SOCKET TEST

Questa funzione misura la tensione in TRMS (Vero Valore Efficace) tra Fase e Neutro o tra Fase e Fase nei sistemi Trifase ed esegue contemporaneamente il test del cablaggio della presa.

Funzionamento

Inserire il RAPID PRO LE nella presa o collegarlo al quadro elettrico con l'adattatore (Fig.1) e premere il tasto FUNC per selezionare la misura VOLT. Il valore di tensione sarà mostrato solo se il test della presa è corretto e la tensione di contatto è <50V. La barra **VERDE** a display indica che il TEST è "**Socket OK**". E' possibile visualizzare anche la Frequenza della tensione premendo ▶ e se si preme ancora il tasto ▶ si visualizza il numero di serie e la versione del Firmware.
Il Tasto ◀ torna indietro.
Se il sistema è Bifase il RAPID PRO LE lo riconoscerà in automatico e i valori verranno mostrati in **GIALLO**.

ITALIANO

Tensione TRMS

La misura indica il valore di tensione TRMS tra Fase e Neutro in un sistema TT o TN e la barra **VERDE** indica che il cablaggio della presa è corretto

Tensione Trifase TRMS

La misura indica il valore di tensione TRMS tra Fase e Fase in un sistema TT o TN Trifase e la barra **VERDE** indica la frequenza del segnale.

Numero di Serie e Certificato di Calibrazione

Ogni RAPID PRO LE ha un numero di serie e versione del Firmware che permetterà all'APP RAPIDPROREPORT di scaricare le misure e il **CERTIFICATO DI CALIBRAZIONE.**

Sistema Bifase

Esempio di riconoscimento automatico di un sistema Bifase tipico del centro storico di ROMA.
Una volta individuato il sistema bifase si potrà procedere con le misure di RCD e LOOP e generare i REPORT.

8

ERRORI DI CABLAGGIO

Inserire il RAPID PRO LE nella presa e controllare i messaggi di errore di cablaggio indicati dalla barra **ROSSA**. Durante il funzionamento con accessorio per quadro elettrico gli errori potranno apparire per breve tempo causa le connessioni tramite puntali errate o non simultanee.

ERRORE NO PE

Questo errore indica che manca il collegamento di Terra. Rappresenta l'errore più comune e più pericoloso per la sicurezza elettrica.
Soluzione: Smontare la Presa e verificare i collegamenti o verificare l'intero impianto di Terra e tutte le sue connessioni.

ERRORE FASE e NEUTRO INVERTITI

Questo errore indica che la posizione della Fase è invertita rispetto al Neutro
Spesso questo tipo di Errore non è considerato pericoloso.
Durante le misure di LOOP e RCD verrà indicato il simbolo
Soluzione: Smontare la Presa e verificare i collegamenti.

TENSIONE DI CONTATTO >50V

L'errore Vc>50V non permetterà di proseguire con i test causa una differenza di potenziale che si stabilisce tra due parti simultaneamente accessibili come una massa metallica in tensione ed il terreno a cui è sottoposto il corpo umano in caso di guasto di isolamento.
Soluzione: Verificare la presenza di correnti di dispersione.

ERRORE NO NEUTRO o L-PE INVERTITO

Questo errore indica che il neutro non è collegato oppure la Fase e il PE sono Invertiti
Soluzione: Se necessario smontare la Presa e verificare i collegamenti.

ITALIANO

> ⚠ **L'errore Fase e Neutro Invertito non obbliga a girare il collegamento del RAPID PRO LE e si potrà continuare l' utilizzo nelle funzioni RCD, LOOP e Armoniche**

> ⚠ **Durante il collegamento tramite accessorio per quadro elettrico il RAPID PRO LE può indicare errori di cablaggio dovuti alla non contemporaneità dei collegamenti.**
> **Es. Si collega la Fase poi il Neutro al quadro elettrico quindi per un breve tempo il Display indicherà l' errore di NO PE fino a quando il collegamento del PE sarà effettuato.**

RCD TIME (Test del tempo di intervento dei Differenziali)

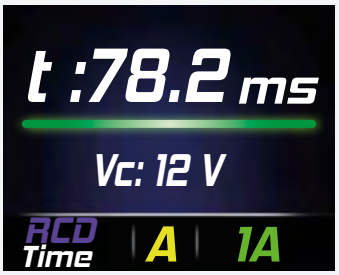
Questa funzione esegue il test secondo le norme IEC/EN 61557-6, EN61008 e EN61009 e dei dispositivi differenziali. Il test è eseguito con una corrente di prova IΔn di 30mA, 100mA ,300mA, 500mA , 650mA e 1A per differenziali di TIPO A , AC e F Generali e Selettivi.

Inserire il RAPID PRO LE nella presa o collegarlo al quadro elettrico con l'adattatore (Fig.1) e premere il tasto FUNC per selezionare la misura RCD TIME. Premere il tasto ◀ per selezionare il tipo di RCD e il tasto ▶ per selezionare la corrente di prova IΔn.
Eseguire il TEST premendo il tasto **ROSSO**.
Prima di generare la corrente di test selezionata il RAPID PRO LE esegue una misura chiamata Pre-Test per il controllo della tensione di contatto e successivamente se la tensione di contatto è <50V verrà generata la corrente di test altrimenti verrà indicato l' Errore Vc>50V (Vedi Pag.9)

Tabella degli Esiti relativi al tempo di intervento

ITALIANO

	Tempo	Corrente IΔn	Esito
1.	t < 300ms	30mA-100mA-300mA-500mA 1A	OK con barra **VERDE**
2.	t > 400ms	30mA-100mA-300mA-500mA 1A	NO OK con Barra **ROSSO**
3.	t compreso tra 300ms e 400ms	30mA-100mA-300mA-500mA 1A	NO OK con Barra **ROSSO**



Il display indica il TEMPO di intervento del differenziale in ms e la barra **VERDE** indica l'esito OK .
Vc indica la tensione di contatto.
Se la tensione di contatto rilevata è >50V il test del differenziale non sarà eseguito e il display indicherà la barra **ROSSA**

Il display indica il TEMPO di intervento del differenziale oltre la NORMA di riferimento e la barra **ROSSA** indica l' esito è NO OK.
Vc indica la tensione di contatto.

Selettivi

Tenere premuto il tasto ◀ per 1 secondo ed apparirà il riquadrato bianco con scritta S (selettivi). Impostare il tipo di RCD A, AC o F e la corrente di test poi premere il tasto **ROSSO** per avviare il test.
Nel riquadrato bianco apparirà un timer di 30 secondi che al termine di questo partirà il test dei dispositivi differenziali SELETTIVI.

⚠ **Durante il test RCD la generazione della corrente di Pre-Prova potrebbe fare intervenire il dispositivo differenziale se presente una corrente di dispersione.**

RCD RAMP (Test Differenziali con corrente crescente)

Inserire il RAPID PRO LE nella presa o collegarlo al quadro elettrico con l'adattatore (Fig. 1) e premere il tasto FUNC per selezionare la misura RCD RAMP. Premere il tasto ▶ per selezionare il tipo di RCD.
Il Test può essere eseguito solo con la corrente IΔn di 30mA tipo A, AC e F.
Eseguire il TEST premendo il tasto **ROSSO**, l'avanzare dell'incremento della corrente verrà visualizzata sul display. Normalmente un dispositivo differenziale deve intervenire con una corrente compresa tra IΔn/2 e IΔn.

Corrente di intervento 28mA Esito positivo indicato dalla barra **VERDE**

Corrente di intervento >IΔn Esito Negativo indicato dalla barra **ROSSA**

ITALIANO

RCD AUTO (Test Differenziali in automatico)

Inserire il RAPID PRO LE nella presa o collegarlo al quadro elettrico con l'adattatore (Fig...) e premere il tasto FUNC per selezionare la misura RCD AUTO. Premere il tasto ◀ per selezionare il tipo di RCD e il tasto per selezionare la corrente di prova IΔn. Eseguire il TEST premendo il tasto **ROSSO**, ad ogni riarmo del differenziale lo strumento eseguirà il test successivo appena misura tensione di rete senza pressione del tasto **ROSSO**.

STEP DI MISURA	GENERAZIONE IΔn		ESITI	STEP ABILITATI
STEP 1	IΔn x1	0°	OK se <300 ms	Tutti i valori di IΔn
STEP 2	IΔn x1	180°	OK se <300 ms	Tutti i valori di IΔn
STEP 3	IΔn x5	0°	OK se <40 ms	**Solo 30mA e 100mA**
STEP 4	IΔn x5	180°	OK se <40 ms	**Solo 30mA e 100mA**
STEP 5	IΔn x1/2	0°	OK se >1000 ms	Tutti i valori di IΔn
STEP 6	IΔn x1/2	180°	OK se >1000 ms	Tutti i valori di IΔn

Esempio della funzione RCD AUTO con corrente di test IΔn di 30mA.
Il test x5 è disponibile come mostrato nella tabella sopra.
L' Esito negativo dello STEP di misura è indicato dal valore **ROSSO** mentre i valori **VERDI** hanno esito positivo
La scritta **NOT** indica che la prova a x1/2 non è passata.
Premere il tasto ▶ per abilitare la funzione RCD Selettivi e il riquadro bianco apparirà.

Esempio della funzione RCD AUTO con corrente di test IΔn di 1A.
Il test x5 non sarà disponibile come mostrato nella tabella sopra.
L' Esito negativo dello STEP di misura è indicato dal valore **ROSSO** mentre i valori **VERDI** hanno esito positivo
La scritta **NOT** indica che la prova a x1/2 non è passata.

LOOP (Misura dell'anello di guasto)

DIGITALOOP™

Il RAPID PRO LE utilizza il metodo brevettato **DIGITALOOP™** per eseguire tutte le misure di **LOOP** come la **Resistenza Globale di Terra** e l'**impedenza della linea** secondo la norma IEC/EN 61557-3.
La prima generazione di RAPID PRO utilizza il Digitaloop™ solo per la Resistenza di Globale di terra misurando l'anello di guasto tra L-PE con una corrente di circa 15mA per non fare intervenire il dispositivo differenziale e il risultato è una misura precisa e immune dai disturbi, ma per misurare l'impedenza dell'anello di guasto tra Fase e Neutro bisognava aggiungere qualcosa a questo metodo.
Normalmente la misura dell'impedenza tra Fase e Neutro richiede che venga generata una corrente dell' ordine di decine di Ampere rendendo il prodotto molto ingombrante e costoso.
UNIKS ha trovato la soluzione migliorando ancora l'algoritmo DIGITALOOP™ aggiungendo nuovi calcoli di **intelligenza artificiale** chiamati **LOOP AI** e grazie a questa innovazione siamo riusciti ad eseguire le stesse misure dei prodotti Multifunzione dentro il design portabile e innovativo del RAPID PRO LE.

ITALIANO

Funzionamento

Inserire il RAPID PRO LE nella presa o collegarlo al quadro elettrico con l'adattatore (Fig.1) e premere il tasto FUNC per selezionare la misura LOOP. Premere il tasto ◀ per selezionare LPE quindi Resistenza Globale di Terra o LN per la misura dell' impedenza della linea e calcolo della corrente prospettica di Cortocircuito.
Premere il tasto ▶ per scegliere la modalità della generazione di corrente **LOW** o **AI** (LOW è presente solo se selezionata la funzione LPE).
La modalità **LOW** è molto importante durante il test della Resistenza di Terra perchè evita lo scatto del differenziale anche in presenza di correnti di dispersione ma la precisione sarà 8% ± 12 dgt.
La misura potrà essere effettuata solo dopo che il cerchio bianco ha terminato il suo assestamento del DIGITALOOP™ inoltre la barra **AZZURRA** si contrae se il disturbo nella linea in esame è piccolo e si estende se il disturbo è grande.
Eseguire il TEST premendo il tasto **ROSSO**.
Prima di generare la corrente di test selezionata il RAPID PRO LE esegue una misura chiamata Pre-Test per il controllo della tensione di contatto e successivamente se la tensione di contatto è <50V verrà generata la corrente di test altrimenti verrà indicato l' Errore Vc>50V (Vedi Pag.9)

Cerchio di assestamento del DIGITALOOP™

Barra indicatrice del disturbo di rete e della durata della misura dopo la pressione del tasto ROSSO

12

LOOP Z LPE (Resistenza Globale di Terra)

Misura della ZLPE con circa 15mA di corrente di test per non fare intervenire il dispositivo differenziale.
Modalità **AI** per aumentare il filtraggio del DIGITALOOP™.
Se la misura viene effettuata in un sistema TT allora il risultato Z: sarà la Resistenza Globale di TERRA.
Questo valore sarà accettabile se:

$$Z \leq \frac{Vc}{I\Delta n}$$

Vc è la tensione di contatto (≤50V e ≤25V per ambienti speciali) e IΔn è la corrente nominale del dispositivo differenziale che sta proteggendo l'impianto.

Se la misura viene effettuata in un sistema TN allora ZLPE è l'impedenza tra Fase e Terra con l' indicazione della Corrente di cortocircuito Isc verso terra

ITALIANO

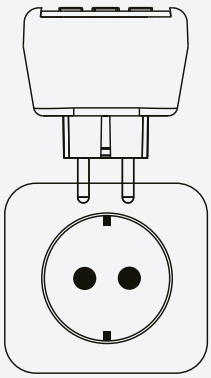
Misura della ZLPE con modalità **LOW** quindi con una bassissima correte di test (circa 7mA) per non rischiare che il dispositivo differenziali intervenga durante la misura e si crei un disservizio nel luogo di lavoro.
La precisione della misura sarà 8% ± 12 dgt.

Esempio di un risultato di resistenza di terra molto elevata con barra indicatrice di colore **ROSSO** e valore indicato maggiore di **2.000 Ω**

Collegamenti per misure di LOOP

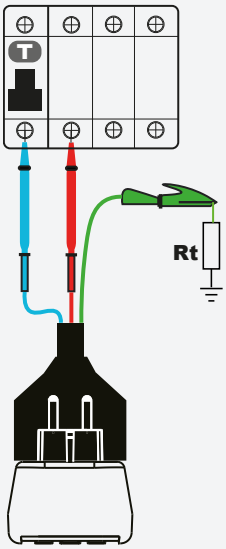
MODO 1

Sistemi TT e TN
Monofase
Bifase



MODO 2

Sistemi TT e TN
Monofase
Bifase
Trifase



LOOP Z LN (Impedenza di Linea)

Misura della ZLN con modalità **AI** per la misura dell'impedenza della Linea e corrente di cortocircuito prospettica Isc.
La misurazione dell'impedenza dell'anello di guasto è fondamentale per garantire che i magnetotermici intervengano tempestivamente in caso di cortocircuito, evitando tensioni di contatto pericolose. Secondo le norme CEI, l'impedenza di linea deve essere sufficientemente bassa da permettere allo sganciatore magnetico di scattare entro i tempi previsti.
Scopo della misura è verificare se la corrente di cortocircuito prospettica Isc calcolata dal RAPID PRO LE è superiore alla corrente di intervento magnetico dell'interruttore e inferiore del suo potere di interruzione.

$$Isc = \frac{Vo}{Z} \qquad Isc \geq Im$$

ITALIANO

Im è la corrente di sicuro intervento del dispositivo di protezione entro 5 secondi.

Esempio di una misura di LOOP LN.
Test eseguito su un dispositivo magnetotermico C16.
Curva tipo C, con campo di intervento da 5In fino a 10In
Risultati della misura:
Z:0,27Ω
Isc= 850
Verifica:
16Ax10 (10In intervento istantaneo sicuro)=160A

850A≥160A? Verifica OK

Tabella delle curve dei Magnetotermici:
tipo B con campo di intervento istantaneo sicuro da ≥ 5In
tipo C, con campo di intervento istantaneo sicuro da ≥ 10In
tipo D, con campo di intervento istantaneo sicuro da ≥ 20In
tipo K, con campo di intervento istantaneo sicuro da ≥ 14In
tipo Z, con campo di intervento istantaneo sicuro da ≥ 3,6In
Tabella Curve dei Fusibili
tipo aM, con campo di intervento istantaneo sicuro da ≥ 14,4In

Simbolo che indica che la Fase e il Neutro sono invertiti.
Si può procedere alle misurazioni ma si consiglia di collegare i puntali in modo corretto.

Har ARMONICHE DI TENSIONE

Questa funzione permette di analizzare la qualità della tensione di rete e di analizzare le sue armoniche di tensione fino alla 49th.

Modalità di Test:

- Fund mostra l' Armonica fondamentale h1 (colore **ROSSO**), la sua frequenza (~50Hz) e il THD% che indica la percentuale di distorsione armonica totale della tensione di rete (Fig. 2).
- h2....50 mostra il valore di tensione TRMS dell' armonica selezionata (colore **ROSSO**), la sua Frequenza e la percentuale (%) rispetto all' h1 Fondamentale a 50Hz (Fig. 3)

Funzione Armoniche

Inserire il RAPID PRO LE nella presa o collegarlo al quadro elettrico con l'adattatore (Fig 1) e il tasto FUNC per selezionare la misura Har. Premere il tasto ▶ per selezionare le armoniche di ordine maggiore o premere il tasto ▶ per tornare verso l' armonica h1.
Sarà possibile scollegare il RAPID PRO LE dall' alimentazione ed analizzare comodamente le armoniche fino alla scarica completa del SUPERCAP.

Fig.2

Fig.3

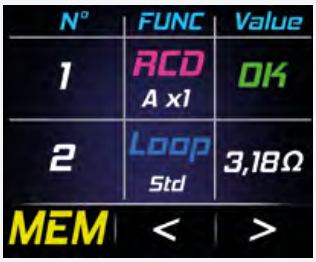
ITALIANO

MEM Memoria / REPORT

Ogni misura eseguita di RCD e LOOP verrà memorizzata automaticamente nella sezione MEM. Premere il tasto FUNC per selezionare MEM.
Premere i tasti ◀ o ▶ per scorrere le misure memorizzate o premere contemporaneamente i tasti ◀ e ▶ per cancellare la memoria apparirà "DELETE MEMORY" e scegliere YES per cancellare.
Sarà possibile memorizzare 64 misure consecutive.
Premendo il tasto **ROSSO** si potrà generare un QR CODE per la generazione dei REPORT (Fig.12). Le 64 locazioni possono essere organizzate in ordine temporale . L' ultima misura verrà sempre salvata nella prima CELLA libera in ordine crescente (1…64).

CREARE REPORT

Premere il tasto **ROSSO** per generare il QR CODE.
Inquadrare il QR CODE con il vostro smartphone tramite l' APP RAPID PRO REPORT.
Tutte le misure salvate saranno inserite in un REPORT con la possibilità di esportare in pdf o csv.
Scarica l' APP RAPID PRO REPORT per sistemi iOS e Android.



MEMORIA

La colonna N° indica il numero della misura.
La colonna FUNC indica la misura salvata con le sue impostazioni.
La colonna Value indica l' esito della misura.
Il risultato della misura RCD è indicato :
VERDE se l' esito è OK
ROSSO se l' esito è NO OK.

15

APP RAPIDPROREPORT

Download APP
Installare l' APP RAPIDPROREPORT sul vostro smart-phone per creare i Report delle vostre misure, salvare il vostro archivio di misure e scaricare il Certificato di Calibrazione.
L' APP è compatibile con sistimi iOS e Android.

Scansiona per scaricare l' APP

ITALIANO

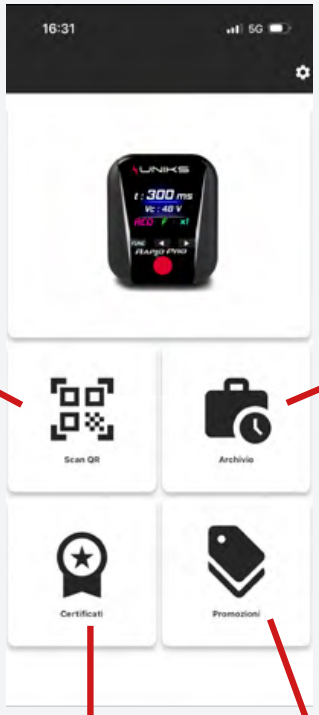
Procedura di funzionamento dell'APP
Ogni misura di LOOP e RCD verrà memorizzata Automaticamente nella videata MEM del RAPID PRO LE .
Si potranno memorizzare 64 misure consecutivi che genereranno un QR Code con tutte le informazioni per i vostri Report.

1. Installare l' APP ed eseguire la registrazione del vostro RAPID PRO LE
2. Collegare il RAPID PRO LE ad una fonte di tensione e selezionare la funzione **MEM** poi premere il tasto **ROSSO** e il Qr Code apparirà sul display (Fig.4).
3. Nella pagina HOME dell'APP premere il pulsante Scan QR (Fig.5) e inquadrare il QR code nel display del RAPID PRO LE per scaricare le misure.
4. Nella pagina HOME dell'APP premere il pulsante CERTIFICATI e inquadrare il QR code nel display del RAPID PRO LE per scaricare il certificato di calibrazione
5. Una volta scaricate le misure Premere il pulsante ☰ per salvare le misure o generare il REPORT
6. Prima di ripartire per un'altra certificazione consigliamo di cancellare la memoria del RAPID PRO LE e eseguire nuovamente le nuove verifiche.
7. Premere contemporaneamente i tasti ◀ e ▶ per cancellare la memoria apparirà "DELETE MEMORY" e scegliere YES per cancellare.

Fig.4

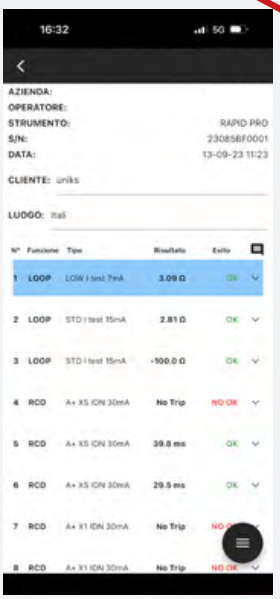
Fig.5

APP RAPIDPROREPORT



Funzione Scan Qr
Attiva la telecamera del vostro smart-phone per inquadrare il Qr Code nel display del RAPID PRO LE e scaricare le misure

Archivio delle misure
Le Misure scaricate e salvate saranno presenti in Archivio



Certificati
Attiva la telecamera del vostro smart-phone per inquadrare il Qr Code nel display del RAPID PRO LE e scaricare il certificato di calibrazione

Manuali
E' possibile scaricare i manuali d'uso sempre aggiornati

ITALIANO

Modificare le Misure scaricate

1. Le misure Scaricate saranno elencate da 1÷64 e per ogni misura sarà indicato l' Esito OK e Valore e i parametri delle misure.
2. Premendo sulla misura è possibile aggiungere un commento
3. Se si esegue uno swipe da destra a sinistra apparirà "Elimina".
4. Azienda e Operatore sono inseriti nell'impostazione dell'APP
5. Premere ≡ per Salvare o Esportare
6. Esporta include il formato del certificato in PDF o in CSV per essere elaborato da altri sotware.

17

ITALIANO

EVSE TEST

Il RAPID PRO LE può essere connesso al prodotto opzionale EVCHECK per le verifiche delle colonnine di ricarica delle Auto Elettriche secondo le NORME:
EC/EN60364-7-722
IEC/EN61010-1
IEC/EN61851-1

Oltre ai Test del CP e PP Control si potranno eseguire tutte le misure disponibile nel RAPID PRO LE come test RCD tipo A, AC e F , LOOP L-PE e L-N misura delle Armoniche e Tensione di Rete.

Funzionamento:

1. Collegare il CAVO TIPO 2 alla Colonnina
2. Portare il CP sulla posizione C
3. Collegare il Rapid Pro LE alla presa schuko dell'EVCHECK
4. Avviare le misure dal RAPID PRO LE come da manuale

18

DATI TECNICI

INPUT:

Categoria di misura:	CAT III 300V verso terra
Range di Tensione:	190 ÷ 440V AC
Range di Frequenza	42 ÷ 69 Hz
Massima corrente assorbita:	<25mA
Fluttuazione tensione di ingresso	10%

Normative:

Normative di riferimento:	IEC/EN61557-3 IEC/EN61557-6
Normative di Sicurezza :	IEC/EN61010-1 IEC/EN61010-2-030
EMC:	IEC/EN61326-1

Display e Memoria:

Display:	TFT 1,77" Display
Locazioni di Memoria:	64

Condizioni ambientali

Utilizzo:	interno
Altitudine:	0 ÷ 2000 m
Temperatura di riferimento:	0°C ÷ 23°C
Temperatura di utilizzo:	0°C ÷ 40°C
Umidità relativa ammessa:	<80%RH
Temperatura di conservazione:	-20°C ÷ 60°C
Umidità di conservazione:	<80%RH
Grado di inquinamento:	2

Caratteristiche meccaniche:

Dimensioni:	(81,5 x 70 x 83) mm
Peso:	120

ITALIANO

19

SPECIFICHE TECNICHE

TENSIONE TRMS

Tensione TRMS - Frequenza da 42Hz a 69Hz ± 5%

Range (V)	Risoluzione (V)	Precisione
0÷440	1	±(1% + 1dgt)

Protezioni da sovraccarico fino 440V
CAT III 300V

FREQUENZA

Range (Hz)	Risoluzione (Hz)	Precisione
42÷69	0,1	±(2% + 1dgt)

ITALIANO

ARMONICHE DI TENSIONE e THD%

da 1 alla 50th

Range (V)	Risoluzione (V)	Precisione
0,8÷440	0,1	±(3% + 5dgt)

Le Armoniche con intensità inferiore a 0,8V verranno azzerate
THD% viene calcolato come

Socket Test per Cablaggio

Tensione L-PE da 190V÷269V - Frequenza 50Hz ± 5%

ERRORE	Risoluzione (V)
NO PE	Blocco Utilizzo fino alla risoluzione del problema
Vc>50V	Blocco Utilizzo fino alla risoluzione del problema
LN invertito	Tutti i Test possono essere eseguiti senza invertire
NO NEUTRO	Blocco Utilizzo fino alla risoluzione del problema
L-PE invertito	Blocco Utilizzo fino alla risoluzione del problema

20

SPECIFICHE TECNICHE

RCD TIME

Tensione L-PE da 190V÷269V - Frequenza 50Hz ± 5% - NORMA IEC/EN61557-6

Range (ms)	Risoluzione (ms)	Precisione
0÷400 Generale	0,1	±(1ms + 2dgt)
0÷500 Selettivo	0,1	±(1ms + 2dgt)

Tipo di RCD AC, A e F
IΔn 30mA, 100mA, 300mA, 500mA, 650mA e 1A
Tempo massimo di Generazione: 400ms per RCD GENERALI e 500ms per RCD SELETTIVI
1s per il test X1/2

RCD RAMP

Tensione L-PE da 190V÷269V - Frequenza 50Hz ± 5% - NORMA IEC/EN61557-6

Range (mA)	Risoluzione (mA)	Precisione
0÷30 (Tipo AC)	0,1	±(2mA + 2dgt)
0÷42 (Tipo A, F)	0,1	±(2mA + 2dgt)

Tipo di RCD AC, A e F
IΔn solo 30mA
Tempo massimo di Generazione: 5s per RCD GENERALI

ITALIANO

RCD AUTO

Tensione L-PE da 190V÷269V - Frequenza 50Hz ± 5% - NORMA IEC/EN61557-6

IΔn (mA)			1/2 IΔn (mA)			5 IΔn (mA)		
AC	A	F	AC	A	F	AC	A	F
30	42	42	15	10	10	150	212	212
100	141	141	50	33	33	500	707	707
300	424	424	150	100	100	-	-	-
500	707	707	250	166	166	-	-	-
650	919	919	325	216	216	-	-	-
1000	1410	1410	500	333	333	-	-	-

Tempo massimo di Generazione: 400ms per RCD GENERALI e 500ms per SELETTIVI
Segno - significa che le misure non sono disponibili
Tutti i valori di corrente generati includono il test di polarità 0° e 180°

ITALIANO

SPECIFICHE TECNICHE

LOOP Z L-PE

Tensione L-PE da 190V÷269V - Frequenza 50Hz ± 5% - NORMA IEC/EN61557-3

Range (Ω)	Risoluzione (Ω	Precisione
0,01÷9,99	0,01	±(5% + 8dgt)
10÷99,9	0,1	±(5% + 8dgt)
100÷999	1	±(5% + 8dgt)
LOW corrente di 7mA		±(8% + 12dgt)

LOOP Z L-N

Tensione L-N da 190V÷269V - Frequenza 50Hz ± 5% - NORMA IEC/EN61557-3

Range (Ω)	Risoluzione (Ω	Precisione
0,01÷9,99	0,01	±(2% + 5dgt)
10÷99,9	0,1	±(2% + 5dgt)
100÷999	1	±(2% + 5dgt)

Protezioni da sovraccarico fino 440V
Corrente di Cortocircuito Isc da 0,1A÷24KA Precisione riferita a Z LOOP.
CAT III 300V

22

GARANZIA

Questo strumento è garantito contro ogni difetto di materiale e fabbricazione,in conformità con le condizioni generali di vendita. Durante il periodo di garanzia, le parti difettose possono essere sostituite, ma il costruttore si riserva il diritto di riparare ovvero sostituire il prodotto. Qualora lo strumento debba essere restituito al servizio post - vendita o ad un rivenditore, il trasporto a carico del Cliente. La spedizione dovrà, in ogni caso, essere preventivamente concordata. Allegata alla spedizione deve essere sempre inserita una nota esplicativa circa le motivazioni dell'invio dello strumento. Per la spedizione utilizzare solo l'imballo originale. Ogni danno causato dall'utilizzo di imballaggi non originali verrà addebitato al Cliente. Il costruttore declina ogni responsabilità per danni causati a persone o oggetti.

La garanzia non è applicata nei seguenti casi:

- Riparazione e/o sostituzione accessori (non coperti da garanzia).
- Riparazioni che si rendono necessarie a causa di un errato utilizzo dello strumento o del suo utilizzo con apparecchiature non compatibili.
- Riparazioni necessarie a causa di un imballaggio non adeguato.
- Riparazioni che necessarie a causa di interventi eseguiti da personale non autorizzato.
- Modifiche apportate allo strumento senza autorizzazione del costruttore.
- Utilizzo non contemplato nelle specifiche dello strumento o nel manuale d'uso.
- Il contenuto del presente manuale non può essere riprodotto in alcuna forma senza l'autorizzazione del costruttore.
- I nostri prodotti sono brevettati e i marchi depositati. Il costruttore si riserva il diritto di apportare modifiche alle specifiche ed ai prezzi se ciò è dovuto a miglioramenti tecnologici.

ITALIANO

Manutenzione

Utilizzare un panno umido e una piccola quantità di detergente per pulire il guscio dello strumento.

⚠ Non utilizzare solventi abrasivi o chimici.

Smaltimento

L' apparecchio dovrebbe essere riciclato come rifiuto elettronico

ASSISTENZA

Se lo strumento non funziona correttamente, prima di contattare il Servizio di Assistenza, controllare lo stato delle presa e l' involucro. Se lo strumento continua a manifestare malfunzionamenti controllare se la procedura di utilizzo è conforme a quanto indicato nel presente manuale.
Qualora lo strumento debba essere restituito al servizio post - vendita o ad un rivenditore, il trasporto è a carico del Cliente.
La spedizione dovrà, in ogni caso, essere preventivamente concordata.
Allegata alla spedizione deve essere sempre inserita una nota esplicativa circa le motivazioni dell'invio dello strumento.
Per la spedizione utilizzare solo l'imballaggio originale; ogni danno causato dall'utilizzo di imballaggi non originali verrà addebitato al Cliente.
La riparazione deve essere eseguita solo da UNIKS Srl.

ENGLISH

24

UNIKS

EN

RAPID PRO LIMITED EDITION

User manual

English

UNIKS

RAPID PRO

Limited Edition

EN User Manual

Uniks Srl Copyright® V1.01 www.uniks.it

ENGLISH

Download APP

Install the RAPIDPROREPORT app on your smartphone to create measurement reports, save your measurement archive, and download the calibration certificate.
The app is compatible with iOS and Android systems.

Scan to download the App

Download on the App Store

ANDROID APP ON Google play

26

INDEX

Page

INTRODUCTION.....28
GENERAL DESCRIPTION.....29
PRODUCT DESCRIPTION.....30
CONNECTIONS.....31
VOLTAGE MEASUREMENT AND SOCKET TEST.....32
WIRING ERRORS.....33
RCD TIME.....34
RCD RAMP.....35
RCD AUTO.....35
LOOP.....36
LOOP Z LPE (non-trip earth loop impedance).....37
LOOP Z LN (Line Impedance).....38
VOLTAGE HARMONICS.....39
MEM Memory / REPORT.....39
RAPIDPROREPORT APP.....40
EVSE TEST.....42
TECHNICAL DATA.....43
TECHNICAL SPECIFICATIONS.....44
WARRANTY.....47
ASSISTANCE.....47

ENGLISH

INTRODUCTION

Congratulations on your purchase of the RAPID PRO Limited Edition the pocket-sized multifunction for electrical installations verification produced in only 500 numbered examples **MADE IN ITALY.**
The RAPID PRO LE represents a new frontier in verification instruments for electrical installations, and thanks to the UNIKS Digitaloop™ patent, it has evolved to include measurements in both **civil and industrial** settings. In addition to being used as a multimeter in TRMS and Receptacle Test, it enables electrical safety tests (RCD, LOOP L-Pe - L-N) in accordance with the STANDARDS IEC61557-3 and IEC61557-6.
It is equipped with a 1.77" TFT Display. , of internal memory and a SUPERCAP to power it even when disconnected from the mains.

PRECAUTIONS AND SAFETY MEASURES

ENGLISH

⚠ Caution: Follow the instructions in the manual; improper use could cause damage to the instrument or create dangerous situations for
the operator.

⚠ High Voltage Hazard: electrical shock hazards

The instrument is designed in accordance with IEC/EN61010-1, relating to electronic measuring instruments. To avoid damaging the instrument, carry out the procedures described in this manual.

- Do not make measurements in humid environments.
- Do not make measurements in the presence of explosive, combustible gases or materials, or in dusty environments.
- Avoid contact with the circuit under test if you are not making measurements. Avoid contact with exposed metal parts, unused measurement terminals, etc.
- Do not make any measurement if any abnormality is found in the instrument such as, deformation,

⚠ **The maximum input AC voltage is 440V . Do not measure voltages that exceed the limits given in this manual and printed on the instrument. Exceeding the voltage limits could cause electrical shock to the user and damage to the instrument.**

⚠ **Product RESET procedure: Press and hold both buttons FUNC ▶ simultaneously for two seconds and wait until you hear a beep. This procedure will reset the Rapid Pro MAX to its factory settings and erase all memory. Use this procedure only in the event of a malfunction.**

28

GENERAL DESCRIPTION

The RAPID PRO LE performs the following measurements:

1. L-N Voltage in TRMS or Three Phase Voltage with Accessory
2. Frequency of Line Voltage
3. RCD Testing (RCD) A, AC and F up to 1A
4. General and Selective RCD Testing
5. Test Current IΔn 30mA, 100mA, 300mA, 500mA, 650mA and 1A
6. RCD AUTO test modes.
7. RCD RAMP testing A, AC and F only 30mA
8. Measurement of Contact Voltage Uc
9. Z LOOP L-PE No-trip earth loop impedance test
10. IPEFC Prospective Earth Fault Current.
11. Z LINE Impedance Z L-N or Z L-L three-phase impedance
12. ISC prospective short-circuit current
13. Assumed Short Circuit Current Isc
14. Voltage harmonics up to the 50th
15. Voltage THD% (Line Harmonic Distortion)
16. Fundamental frequency and all harmonics
17. Socket Test (socket wiring)

ENGLISH

Each of these functions can be selected by a special button. There are also function keys, to change measurement parameters or scroll through harmonics. The instrument is also equipped with an **AUTO POWER** function via an internal **SUPERCAP** that allows the RAPID PRO LE to be kept on even when it is not connected to the grid.
Normally charging can take about 45 seconds when the SUPER CAP is fully charged.
This function makes it possible to read the value of the differential trip time after the trip or to conveniently read the values on the display by disconnecting the instrument from the power supply.
All measurement outcomes are indicated with OK and NO OK result through a **GREEN** or **RED** bar in the center of the Display.
The Socket Test function detects common wiring problems such as missing connection to **EARTH (NO PE)** or reversed PHASE and NEUTRAL.
The 'inverted PHASE and NEUTRAL error will be indicated in the VOLT Display, and the RAPID PRO LE will allow you to make all measurements even without inverting the instrument in the socket.
It will also continue to be indicated in RCD and LOOP measurements by the symbol

The Auto Power function is disabled in the LOOP L-Pe and LOOP Line L-N functions.

29

PRODUCT DESCRIPTION

Legend:

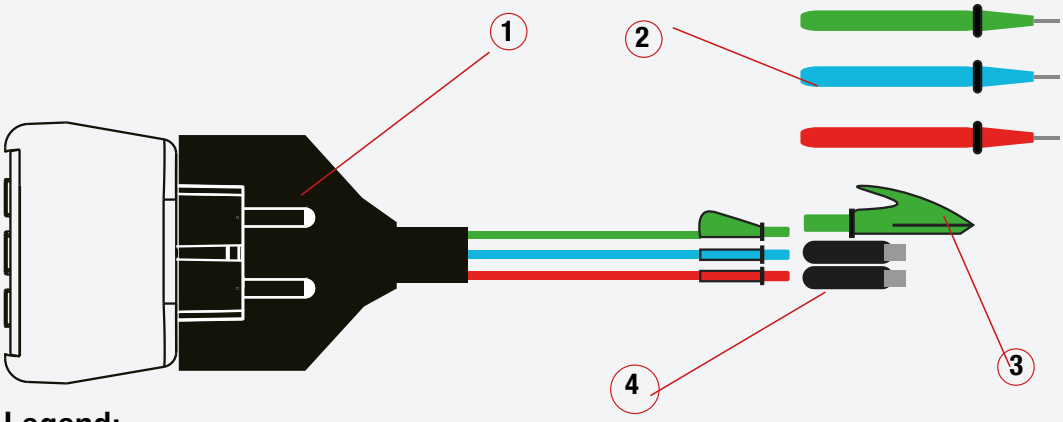
1. Scratch-resistant glass
2. 1.77" TFT display
3. FUNCTIONS button
4. TEST button
5. Button Selection
6. Button Selection
7. EU schuko plug

ENGLISH

7

FUNC Button allows you to select the measurement to be performed. The display will show the following functions: Socket Test / VOLT - LOOP - RCD - HARMONICS (Har) - MEMORY (MEM).
The Buttom◀▶ allow you to set each measurement with its respective parameters, navigate within the memory, and scroll through the Voltage Harmonics from the fundamental to the 49th.The **RED** button allows you to perform RCD and LOOP measurement or force power off when the RRAPID PRO LE is disconnected from the grid.

Accessories for use on the Electrical Panelboard

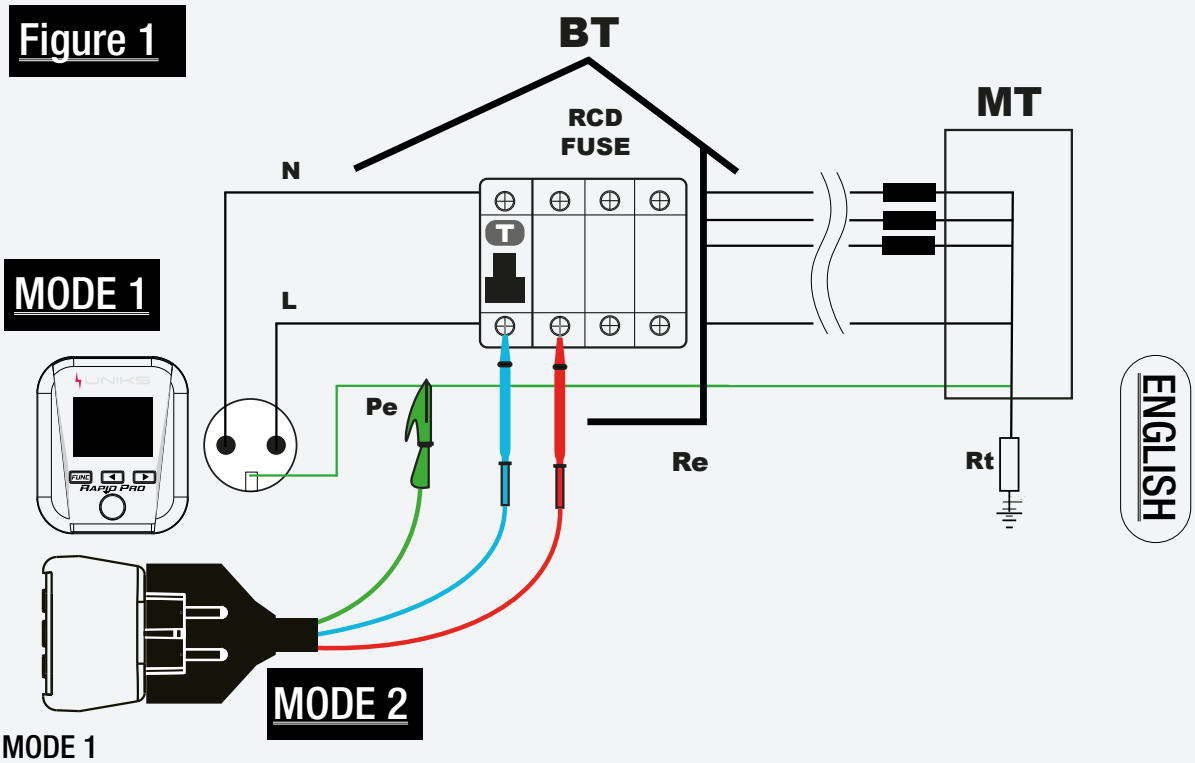


Legend:

1. Adapter Cable for Electrical Panelboard No. RPX-ADAP
2. 3 CAT IV 600V CAT III 1000V Ferrules Cod. RPX-PUNT3
3. Coccorillo Cod. RPX-CLIP
4. 2 Magnetic Tips Cod. RPX-PUNT
5. Transport Bag Cod. RPX-BAG

CONNECTIONS

The RAPID PRO LE can be used in both CIVIL and INDUSTRIAL settings for electrical system verifications in TT and TN systems. There are two WAYS for the connections shown in Fig.1



MODE 1

This mode allows direct connection to sockets of electrical installations in TT and TN systems. Plug the RAPID PRO LE into the socket and start certifying the electrical system or testing socket wiring. Suitable for single-phase systems.

MODE 2

This mode allows a connection through an accessory for Electrical Panels in TT and TN systems and allows all measurements to be used directly in the electrical panel. Suitable for Single-phase and Three-phase systems.

1. Connect the adapter to the RAPID PRO LE
2. Connect the **GREEN** cable to the crocodile and then always to the PE in the electrical panel
3. First connect the **Blue** Tip to the Neutral terminal and then the **Red** to the Phase terminal.
4. It is Possible to replace the tips with Magnetic adapters.
5. Begin the Test
6. In case of current leakage to ground or high voltage between Neutral and PE, it is recommended to connect Neutral first then Phase and then PE to avoid tripping of differential during connections. We recommend checking the electrical system with a leakage current clamp.

⚠ **When using the electrical panel adapter, to avoid electric shock, always connect the green wire to the system's ground (PE) terminal.**

⚠ **When using magnetic test leads, check that the connections to the terminals are well secured and that there is no oxide or rust in the contacts to prevent the measurement from being incorrect.**

31

VOLTAGE MEASUREMENT AND SOCKET TEST

This function measures the voltage in TRMS (True Effective Value) between Phase and Neutral or between Phase and Phase in 3-phase systems and simultaneously tests the socket wiring.

Operation

Plug the RAPID PRO LE into the socket or connect it to the electrical panel with the adapter (Fig.1) and press the FUNC button to select the VOLT measurement. The voltage value will be shown only if the socket test is correct and the contact voltage is <50V. The **GREEN** bar on the display indicates that the TEST is "**Socket OK**." It is also possible to display the Frequency of the voltage by pressing ▶ and if you press the key ▶ again, the serial number and Firmware version will be displayed.
The Key goes back. ◀

ENGLISH

TRMS Voltage

The measurement indicates the TRMS voltage value between Phase and Neutral in a TT or TN system and the **GREEN** bar indicates that the outlet wiring is correct

Three-phase TRMS Voltage

The measurement indicates the TRMS voltage value between Phase and Phase in a TT or TN Three-phase system and the **GREEN** bar indicates the frequency of the signal.

Serial Number and Calibration Certificate

Each RAPID PRO LE has a serial number and Firmware version that will allow the RAPIDPROREPORT APP to download measurements and the **CALIBRATION CERTIFICATE.**

Two-Phase System

Example of automatic recognition of a typical Biphase system in the historic center of ROME.
Once the two-phase system has been identified, it will be possible to proceed with the measurements of
RCD and LOOP and generate REPORTS.

WIRING ERRORS

Plug the RAPID PRO LE into the socket and check the wiring error messages indicated by the **RED** bar. During operation with switchboard accessory, errors may appear for a short time due to connections through incorrect or non-simultaneous leads.

NO PE ERROR

This error indicates that the Ground connection is missing. It represents the most common and most dangerous error for electrical safety.
Solution: Disassemble the Receptacle and check the connections or Check the entire Earth system and all its connections.

INVERTED PHASE and NEUTRAL ERROR

This error indicates that the position of the Phase is reversed with respect to the Neutral. Often this type of Error is not considered dangerous.
During LOOP and RCD measurements the symbol will be displayed
Solution: Disassemble the Receptacle and check the connections.

CONTACT VOLTAGE >50V

Error Vc>50V will not allow testing to continue due to a potential difference that is established between two simultaneously accessible such as a live metal ground and the ground to which the subjected to the human body in the event of an insulation fault.
Solution: Check for the presence of leakage currents.

NO NEUTRAL ERROR or L-PE INVERTED

This error indicates that the neutral is not connected or the Phase and PE are Reversed
Solution: If necessary disassemble the Receptacle and check the connections.

ENGLISH

The Phase and Neutral Reversed error does not force you to turn the connection of the RAPID PRO LE and you will be able to continue 'use in the RCD, LOOP and Harmonics

When connecting via switchboard accessory the RAPID PRO LE can indicate wiring errors due to the connections not being made at the same time.
Ex. You connect the Phase then the Neutral to the switchboard then for a short time the Display will indicate NO PE error until the PE connection is made.

ENGLISH

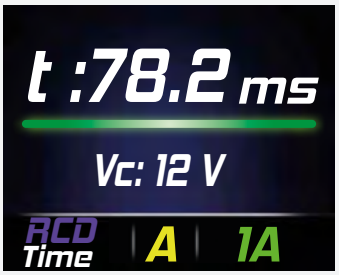
RCD TIME TESTING

This function performs the test according to IEC/EN 61557-6, EN61008 and EN61009 and RCD devices. The test is performed with a test current IΔn of 30mA, 100mA ,300mA, 500mA , 650mA and 1A for RCD devices of TYPE A , AC and F General and Selective.

Plug the RAPID PRO LE into the socket or connect it to the switchboard with the adapter (Fig.1) and press the FUNC button to select RCD TIME measurement. Press the button ◀ to select the RCD type and the button ▶ to select the test current IΔn.
Perform the TEST by pressing the **RED** key.
Before generating the selected test current, the RAPID PRO LE performs a measurement called Pre-Test to check the contact voltage, and then if the contact voltage is <50V the test current will be generated otherwise the Error Vc>50V will be indicated (See Page 9).

Table of Outcomes related to tripping time

	Time	Current IΔn	Result
1.	t < 300ms	30mA-100mA-300mA-500mA 1A	OK with **GREEN** bar
2.	t > 400ms	30mA-100mA-300mA-500mA 1A	NO OK with **RED** bar
3.	t between 300ms and 400ms	30mA-100mA-300mA-500mA 1A	NO OK with **RED** bar



The display indicates the RCD trip TIME in ms and the **GREEN** bar indicates the OK outcome .
Vc indicates the contact voltage.
If the detected contact voltage is >50V, the differential test will not be performed and the display will indicate the **RED** bar

The display indicates the RCD trip TIME beyond the reference NORM and the **RED** bar indicates the 'outcome is NO OK.
Vc indicates the contact voltage.

Selective

Press and hold the button ◀ for 1 second and the white box marked **S (selective)** will appear. Set the RCD type A, AC or F and the test current then press the RED button to start the test.
A 30-second timer will appear in the white box, which will start the SELECTIVE RCD device test after it is completed.

⚠ **During the RCD test, the generation of the Pre-Test current may trip the RCD device if a leakage current is present.**

RCD RAMP TESTING

Plug the RAPID PRO LE into the socket or connect it to the switchboard with the adapter (Fig. 1) and press the FUNC key to select RCD RAMP measurement. Press the button ▶ to select the RCD type.
The Test can be performed only with the current IΔn of 30mA type A, AC and F.
Perform the TEST by pressing the **RED** key, the advance of the current increment will be shown on the display. Normally a RCD device should operate with a current between IΔn/2 and IΔn.

Tripping current 28mA Positive outcom indicated by the **GREEN bar**

Tripping Current >IΔn Negative outcome indicated by the **RED bar**

ENGLISH

RCD AUTO SEQUENCE

Plug the RAPID PRO LE into the socket or connect it to the switchboard with the adapter (Fig...) and press the FUNC button to select RCD AUTO measurement. Press the button◀ to select the RCD type and the button to select the test current IΔn. Perform the TEST by pressing the **RED** key, each time the RCD device is reset, the instrument will perform the next test as soon as it measures line voltage without pressing the **RED** key.
The measurement is performed with 6 or 4 STEP of differential tripping:

MEASUREMENT	GENERATION IΔn	OUTCOMES	STEP ENABLED
STEP 1	IΔn x1 0°	OK if <300 ms	All values of IΔn
STEP 2	IΔn x1 180°	OK if <300 ms	All values of IΔn
STEP 3	IΔn x5 0°	OK if <40 ms	**30mA and 100mA only**
STEP 4	IΔn x5 180°	OK if <40 ms	**30mA and 100mA only**
STEP 5	IΔn x1/2 0°	OK if >1000 ms	All values of IΔn
STEP 6	IΔn x1/2 180°	OK if >1000 ms	All values of IΔn

Example of the RCD AUTO function with test current IΔn of 30mA.
The x5 test is available as shown in the table above.
The 'Negative outcome of the measurement STEP is indicated by the **RED** valuewhile the **GREEN** values have a positive outcome
NOT indicates that the test at x1/2 did not pass.
Press the button ▶ to enable the Selective RCD function, and the white box will appear.

Example of the RCD AUTO function with IΔn test current of 1A.
The x5 test will not be available as shown in the table above.
The 'Negative outcome of the measurement STEP is indicated by the **RED** valuewhile the **GREEN** values have a positive outcome
NOT indicates that the test at x1/2 did not pass.

LOOP

DIGITALOOP™

TheRAPID PRO LE uses the patented DIGITALOOP™ method to perform all LOOP measurements such as No-trip earth loop impedance and line impedance according to **IEC/EN 61557-3.**
The first generation Rapid Pro uses **Digitaloop™** only for No-trip earth loop impedance by measuring the fault loop between L-PE with a current of about 15mA so as not to trip the differential device, and the result is an accurate measurement that is immune to noise, but to measure the fault loop impedance between Phase and Neutral something had to be added to this method.
Normally the measurement of impedance between Phase and Neutral and prospective short-circuit current requires that a current on the order of tens of amperes be generated making it very bulky and expensive.
UNIKS found the solution by further improving the DIGITALOOP™ algorithm by adding new artificial intelligence calculations called **LOOP AI** and thanks innovation we were able to perform the same measurement as the Multifunction products inside the portable and innovative design of the RAPID PRO LE .

ENGLISH

Operation

Plug the RAPID PRO LE into the socket or connect it to the electrical panel with the adapter (Fig.1) and press the FUNC button to select LOOP measurement. Press the button ◀ to select **LPE** then No-trip earth loop impedance test or **LN** for the measurement of 'line impedance and ISC prospective short-circuit current or Prospective Earth Fault Current.
Press the button ▶ to choose the mode of current generation **LOW** or **AI** (LOW is present only if LPE is selected).
The **LOW** mode is very important during the No-trip earth loop impedance test because it prevents the RCD from tripping even in the presence of leakage currents but the accuracy will be 8% ± 12 dgt.
The measurement can be taken only after the white circle has finished its settling of the DIGITALOOP™ also the **BLUE** bar will contract if the noise in the line under test is small and extend if the noise is big.
Perform the TEST by pressing the **RED** button.
Before generating the selected test current, the RAPID PRO LE performs a measurement called Pre-Test to check the contact voltage and then if the contact voltage is <50V the test current will be generated otherwise the Error Vc>50V will be indicated (See Page 9).

Settling circle of the DIGITALOOP™

Indicator bar for mains noise and measurement duration after pressing the RED button

36

LOOP Z LPE (No-trip earth loop impedance).

Measurement of ZLPE with about 15mA test current to not trip the RCD device.
AI mode to increase the filtering of the DIGITALOOP™.
If the measurement is made in a TT/TN system then the result :
Z will be the earth loop impedance **(Zs)**
Isc:Prospective Earth Fault Current **(IPEFC).**

ENGLISH

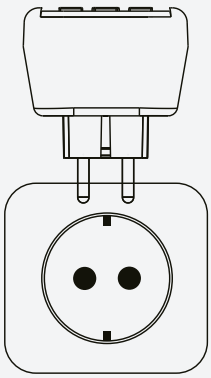
Measurement of ZLPE with **LOW** mode then with a very low test correte (about 7mA) in order not to risk the RCD device tripping during the measurement and creating a disturbance in the workplace.
The accuracy of the measurement will be 8% ± 12 dgt.

Example of a very high ground resistance result
With **RED** indicator bar and indicated value greater than **2.000 Ω**

Connections for LOOP measurements

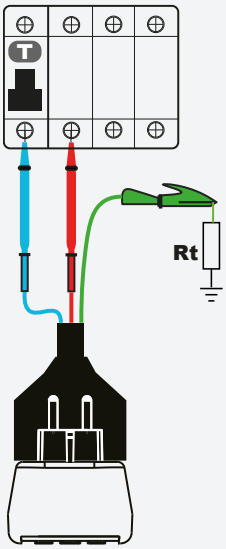
MODE 1

TT and TN systems
Single-phase



MODE 2

TT and TN systems
Single-phase
Three-phase



37

LOOP Z LN (Line Impedance).

AI-mode measurement of ZLN for Line impedance and prospective short-circuit current Isc.
The measurement of loop impedance is critical to ensure that circuit breakers take timely action in the event of a short circuit, preventing dangerous contact voltages. According to IEC standards, the line impedance must be low enough to allow the magnetic circuit breaker to trip within the specified time.
The purpose of the measurement is to check whether the prospective short-circuit current Isc calculated by RAPID PRO LE is higher than the magnetic trip current of the circuit breaker and lower than its breaking capacity.

$$Isc = \frac{Vo}{Z} \qquad Isc \geq Im$$

Im is the safe tripping current of the protective device within 5 seconds.

ENGLISH

Example of a LOOP LN measurement.
Test performed on a C16 circuit breaker.
Type C curve, with operating range from 5In up to 10In
Measurement results:
Z:0.27Ω
Isc= 850
Verification:
16Ax10 (10In instantaneous safe tripping)=160A

850A≥160A? Verification OK

Table of curves of Magnetothermal circuit breakers:
type B with safe instantaneous tripping range of ≥ 5In
Type C, with safe instantaneous tripping range from ≥ 10In
type D, with safe instantaneous tripping range from ≥ 20In
type K, with safe instantaneous tripping range from ≥ 14In
type Z, with safe instantaneous tripping range from ≥ 3.6In
Table of Fuse Curves
aM type, with safe instantaneous tripping range from ≥ 14.4In

Symbol indicating that the Phase and Neutral are reversed.
You can proceed with the measurements but it is recommended to connect the test leads correctly.

38

Har VOLTAGE HARMONICS

This function allows the quality of the mains voltage to be analyzed and its voltage harmonics to the 49th.

Test Mode:

- **Fund** Shows the Fundamental Harmonic h1 (color **RED**), its frequency (~50Hz) and THD% indicating the percentage of total harmonic distortion of the mains voltage (Fig. 2).
- **h2....50** Shows the TRMS voltage value of the selected harmonic (**RED** color), its Frequency and percentage (%) compared to the h1 Fundamental at 50Hz (Fig. 3)

Harmonics Function

Plug the RAPID PRO LE into the socket or connect it to the electrical panel with the adapter (Fig 1) and FUNC key to select Har measurement. Press the button ▶ to select higher order harmonics or press the button ▶ to return to 'h1 harmonic.

You will be able to disconnect the RAPID PRO LE from the 'power supply and conveniently analyze the harmonics until the SUPERCAP is fully discharged.

Fig.2

Fig.3

ENGLISH

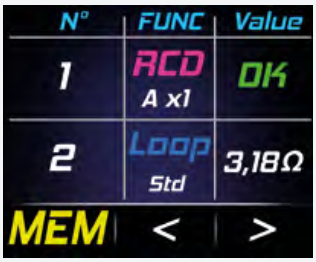
MEM Memory / REPORT

Each performed measurement of RCD and LOOP will be automatically stored in the MEM section. Press the FUNC key to select MEM.

Press the or buttons ◀ ▶ to scroll through the stored measurements or press the and buttons ◀ ▶ simultaneously to clear the memory "DELETE MEMORY" will appear and choose YES to delete.

It will be possible to store 64 consecutive measurements.

Pressing the **RED** key will generate a QR CODE for REPORT generation (Fig.12). The 64 locations can be organized in temporal order . The 'last measurement will always be saved in the first free CELL in ascending order (1...64).



CREATE REPORT

Press the **RED** key to generate the QR CODE.

Frame the QR CODE with your smartphone using the RAPID PRO REPORT APP.

All saved measurements will be entered into a REPORT with the option to export to pdf or csv.

Download the RAPIDPROREPORT APP for iOS and Android systems.

MEMORY

The N° column indicates the number of the measurement.

The FUNC column indicates the saved measurement with its settings.

Value column indicates the 'outcome of the measurement.

The outcome of the RCD measurement is indicated :

GREEN if the outcome is OK

RED if the outcome is NO OK.

RAPIDPROREPORT APP

APP Download
Install the RAPIDPROREPORT APP on your smart-phone to create your Measurement Reports, save your measurement archive and download the Calibration Certificate.
The APP is compatible with iOS and Android systems.

Scan to download the APP

ENGLISH

APP operating procedure
Each LOOP and RCD measurement will be automatically stored in the MEM screen of the Rapid PRO LE.
You will be able to store 64 consecutive measurements which will generate a QRCode with all the information for your Reports.

1. Install the APP and perform the registration of your Rapid Pro LE
2. Connect the RAPID PRO LE to a voltage source and select the **MEM** function then press the **RED** button and the Qr Code will appear on the display (Fig.4).
3. On the HOME page of the APP press the Scan QR button (Fig.5) and frame the QR code in the RAPID PRO LE display to download the measurements.
4. On the HOME page of the APP press the CERTIFICATES button and frame the QR code in the RAPID PRO LE display to download the calibration certificate
5. Once the measurements have been downloaded Press the button ☰ to save the measurements or generate the REPORT
6. Before leaving for another certification, we recommend clearing the RAPID PRO LE's memory and performing the new verifications again.
7. Press the and buttons ◀ ▶ simultaneously to clear the memory "DELETE MEMORY" will appear and choose YES to clear.

Fig.4

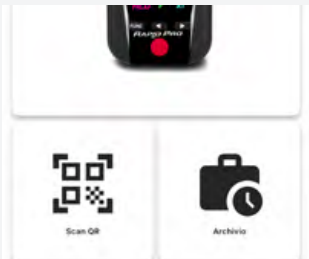
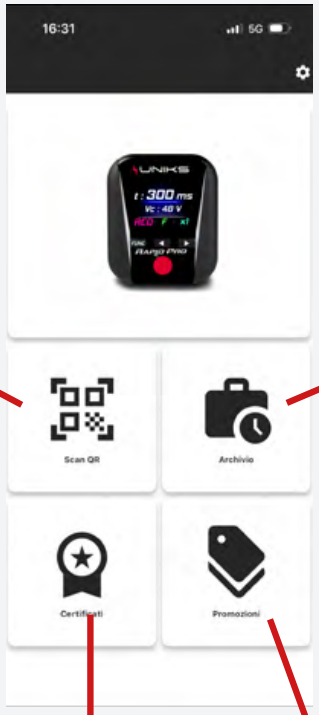


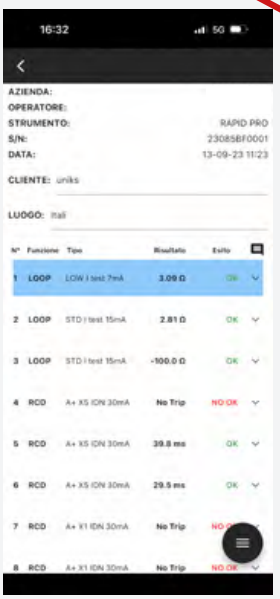
Fig.5

40

RAPIDPROREPORT APP



Scan Qr function
Activates your smart-phone's camera to frame the Qr Code in the RAPID PRO LE display and download the measurements



Measurements archive
The downloaded and saved Measurements will be present in the Archive

Certificates
Activate your smart-phone's camera to frame the Qr Code in the RAPID PRO LE display and download the calibration certificate

Manuals
It is possible to download user manuals that are always up-to-date

ENGLISH

Edit the Downloaded Measurements

1. The Downloaded measurements will be listed from 1÷64 and for each measurement the OK Result and Value and the parameters of the measurements will be indicated.
2. By pressing on the measurement you can add a comment
3. If you swipe from right to left the 'Delete Measure will appear.
4. Company and Operator are entered in the APP setup
5. Press ☰ to Save or Export
6. Export includes the certificate format in PDF or CSV for processing by other sotware.

41

ENGLISH

EVSE TEST

The RAPID PRO LE can be connected to the optional EVCHECK product for testing electric vehicle charging stations according to the following STANDARDS:
CE/EN60364-7-722
IEC/EN61010-1
IEC/EN61851-1

In addition to the CP and PP Control tests, all measurements available in the RAPID PRO LE can be performed, such as RCD type A, AC, and F tests, L-PE and L-N LOOP Impedance, harmonics, and voltage measurements.

Operation:
1. Connect the TYPE 2 CABLE to the charging station
2. Set the CP to position C
3. Connect the Rapid Pro LE to the EVCHECK's Schuko socket
4. Start the measurements from the RAPID PRO LE as per the manual

42

TECHNICAL DATA

INPUT:

Measurement Category:	CAT III 300V to ground
Voltage Range:	190 TO 440V AC
Frequency Range	42 ÷ 69 Hz
Maximum current input:	<25mA
Input voltage fluctuation	10%

Standards:

Reference Standards:	IEC/EN61557-3 IEC/EN61557-6
Safety Standards :	IEC/EN61010-1 IEC/EN61010-2-030
EMC:	IEC/EN61326-1

Display and Memory:

Display:	TFT 1.77" Display
Memory Locations:	64

Environmental Conditions

Usage:	internal
Altitude:	0 ÷ 2000 m
Reference temperature:	0°C ÷ 23°C
Usage temperature:	0°C ÷ 40°C
Allowable relative humidity:	<80%RH
Storage temperature:	-20°C ÷ 60°C
Storage humidity:	<80%RH
Pollution degree:	2

Mechanical characteristics:

Dimensions:	(81.5 x 70 x 83) mm
Weight:	120g

ENGLISH

43

TECHNICAL SPECIFICATIONS

TRMS VOLTAGE

TRMS voltage - Frequency 42Hz to 69Hz ± 5%

Range (V)	Resolution (V)	Accuracy
0÷440	1	±(1% + 1dgt)

Overload protections up to 440V
CAT III 300V

FREQUENCY

Range (Hz)	Resolution (Hz)	Accuracy
42÷69	0,1	±(2% + 1dgt)

ENGLISH

VOLTAGE HARMONICS and THD%

1 to 50th

Range (V)	Resolution (V)	Accuracy
0,8÷440	0,1	±(3% + 5dgt)

Harmonics with intensity less than 0.8V will be reset to zero
THD% is calculated as

Socket Test for Wiring

L-PE voltage from 190V÷269V - Frequency 50Hz ± 5%

ERROR	Resolution (V)
NO PE	Lockout Use until problem resolution
Vc>50V	Lockout Use until problem resolution
LN inverted	All Tests can be performed without reversing
NO NEUTRAL	Lockout Use until the problem is resolved
L-PE inverted	Lockout Use until the problem is resolved

TECHNICAL SPECIFICATIONS

RCD TIME

L-PE voltage from 190V÷269V - Frequency 50Hz ± 5% - IEC/EN61557-6 STAN-

Range (ms)	Resolution (ms)	Accuracy
0÷400 General	0,1	±(1ms + 2dgt)
0÷500 Selective	0,1	±(1ms + 2dgt)

Type of RCD AC, A and F
IΔn 30mA, 100mA, 300mA, 500mA, 650mA and 1A
Maximum Generation Time: 400ms for GENERAL RCDs and 500ms for SELECTIVE RCDs
1s for the X1/2 test

RCD RAMP

L-PE voltage from 190V÷269V - Frequency 50Hz ± 5% - IEC/EN61557-6 standard

Range (mA)	Resolution (mA)	Accuracy
0÷30 (AC Type)	0,1	±(2mA + 2dgt)
0÷42 (Type A, F)	0,1	±(2mA + 2dgt)

Type of RCD AC, A and F
IΔn only 30mA
Maximum Generation Time: 5s for GENERAL RCDs

ENGLISH

RCD AUTO

L-PE voltage from 190V÷269V - Frequency 50Hz ± 5% - IEC/EN61557-6 standard

IΔn (mA)			1/2 IΔn (mA)			5 IΔn (mA)		
AC	A	F	AC	A	F	AC	A	F
30	42	42	15	10	10	150	212	212
100	141	141	50	33	33	500	707	707
300	424	424	150	100	100	-	-	-
500	707	707	250	166	166	-	-	-
650	919	919	325	216	216	-	-	-
1000	1410	1410	500	333	333	-	-	-

Maximum Generation Time: 400ms for GENERAL RCDs and 500ms for SELECTIVE RCDs
Sign - means that measures are not available
All current values generated include 0° and 180° polarity test

ENGLISH

TECHNICAL SPECIFICATIONS

LOOP Z L-PE

L-PE voltage from 190V÷269V - Frequency 50Hz ± 5% - IEC/EN61557-3 standard

Range (Ω)	Resolution (Ω	Accuracy
0,01÷9,99	0,01	±(5% + 8dgt)
10÷99,9	0,1	±(5% + 8dgt)
100÷999	1	±(5% + 8dgt)
LOW current of 7mA		±(8% + 12dgt)

LOOP Z L-N

Voltage L-N from 190V÷269V - Frequency 50Hz ± 5% - IEC/EN61557-3 standard

Range (Ω)	Resolution (Ω	Accuracy
0,01÷9,99	0,01	±(2% + 5dgt)
10÷99,9	0,1	±(2% + 5dgt)
100÷999	1	±(2% + 5dgt)

Overload protections up to 440V
Short Circuit Current Isc from 0.1A÷24KA Accuracy referred to Z LOOP.
CAT III 300V

WARRANTY

This instrument is warranted against all defects in material and workmanship,in accordance with the general conditions of sale. During the warranty period, defective parts may be replaced, but the manufacturer reserves the right to repair or replace the product. If the instrument is to be returned to the after - sale service or to a dealer, transportation at the expense of the Customer. Shipping must, in all cases, be agreed upon in advance. Attached to the shipment must always be an explanatory note about the reasons for sending the instrument. Use only the original packaging for shipping. Any damage caused by the use of non-original packaging will be charged to the Customer. The manufacturer disclaims any liability for damage caused to persons or objects.

Warranty does not apply in the following cases:

- Repair and/or replacement of accessories (not covered by warranty).
- Repairs that are necessary due to incorrect use of the instrument or its use with incompatible equipment.
- Repairs that necessary due to improper packaging.
- Repairs that are necessary due to work performed by unauthorized personnel.
- Modifications made to the instrument without the manufacturer's authorization.
- Use not covered in the instrument specifications or user's manual.
- The contents of this manual may not be reproduced in any form without the permission of the manufacturer.
- Our products are patented and trademarks registered. The manufacturer reserves the right to make changes in specifications and prices if this is due to technological improvements.

ENGLISH

Maintenance

Use a damp cloth and a small amount of detergent to clean the instrument shell.

⚠ Do not use abrasive or chemical solvents.

Disposal

The 'instrument should be recycled as electronic waste

SERVICE

If the instrument is not working properly, check the condition of the sockets and the 'casing before contacting the Service Department. If the instrument continues to malfunction, check whether the operating procedure is in accordance with this manual.
If the instrument is to be returned to after -sales service or to a dealer, transportation is the responsibility of the Customer.
Shipping must, in any case, be agreed upon in advance.
Attached to the shipment must always be an explanatory note about the reasons for sending the instrument.
Use only the original packaging for shipping; any damage caused by the use of non-original packaging will be charged to the Customer.
Repairs must be carried out only by UNIKS Srl.

Uniks Srl
Via Vittori 57, 48018 Faenza (RA) – Italia
Phone +39 0546 623002
Fax +39 0546 6236691
P.IVA 02627000397
REA: RA - 218481
mail info@uniks.it

www.uniks.it

UNIKS

DE

RAPID PRO LIMITED EDITION

Bedienungsanleitung

Deutsch

DEUTSCH

BEDIENUNGSANLEITUNG

Rapid Pro Limited Edition

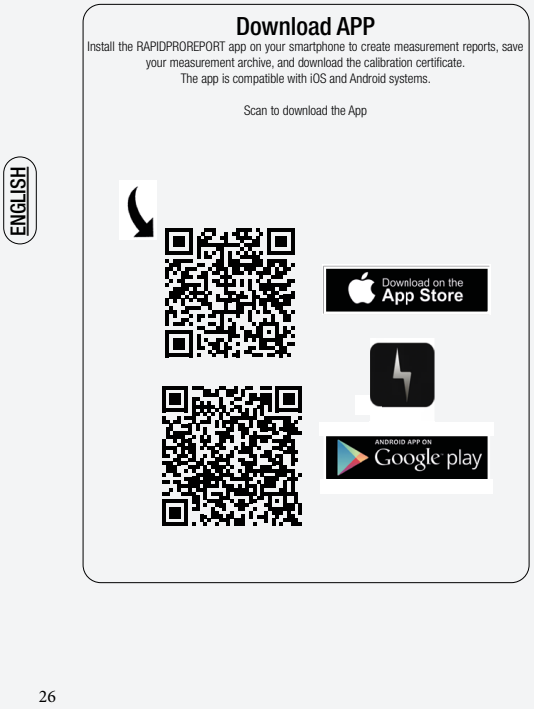
Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

DEUTSCH

APP HERUNTERLADEN

Installieren Sie die App RAPIDPROREPORT auf Ihrem Smartphone, um Messberichte zu erstellen, Ihr Messarchiv zu speichern und das Kalibrierzertifikat herunterzuladen.
Die App ist mit iOS- und Android-Systemen kompatibel.
Scannen, um die App herunterzuladen.

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert



DEUTSCH

INHALTSVERZEICHNIS

EINFÜHRUNG — 28
ALLGEMEINE BESCHREIBUNG — 29
PRODUKTBESCHREIBUNG — 30
ANSCHLÜSSE — 31
SPANNUNGSMESSUNG UND STECKDOSENTEST — 32
VERDRAHTUNGSFEHLER — 33
RCD-AUSLÖSEZEIT — 34
RCD-RAMPE — 35
RCD-AUTO — 35
LOOP — 36
LOOP Z L-PE — 37
LOOP Z L-N — 38
SPANNUNGSOBERSCHWINGUNGEN — 39
MEM-SPEICHER / BERICHT — 39
APP RAPIDPROREPORT — 40
EVSE-TEST — 42
TECHNISCHE DATEN — 43
TECHNISCHE SPEZIFIKATIONEN — 44
GARANTIE — 47
KUNDENDIENST — 47

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

INDEX

Page
INTRODUCTION....28
GENERAL DESCRIPTION....29
PRODUCT DESCRIPTION....30
CONNECTIONS....31
VOLTAGE MEASUREMENT AND SOCKET TEST....32
WIRING ERRORS....33
RCD TIME....34
RCD RAMP....35
RCD AUTO....35
LOOP....36
LOOP Z LPE (non-trip earth loop impedance)....37
LOOP Z LN (Line Impedance)....38
VOLTAGE HARMONICS....39
MEM Memory / REPORT....39
RAPIDPROREPORT APP....40
EVSE TEST....42
TECHNICAL DATA....43
TECHNICAL SPECIFICATIONS....44
WARRANTY....47
ASSISTANCE....47

ENGLISH

27

DEUTSCH

EINFÜHRUNG

Herzlichen Glückwunsch zum Kauf des RAPID PRO Limited Edition, des Multifunktionsprüfgeräts im Taschenformat zur Prüfung elektrischer Anlagen, hergestellt in nur 500 nummerierten Exemplaren MADE IN ITALY.
RAPID PRO LE stellt eine neue Grenze bei Prüfgeräten für elektrische Anlagen dar. Dank des UNIKS-Patents Digitaloop™ umfasst es Messungen im privaten und industriellen Bereich. Neben der Verwendung als TRMS-Multimeter und für den Steckdosentest ermöglicht es elektrische Sicherheitsprüfungen (RCD, LOOP L-PE und L-N) nach IEC61557-3 und IEC61557-6.
Es verfügt über ein 1.77"-TFT-Display, einen internen Speicher und einen SUPERCAP, der das Gerät auch nach der Trennung vom Netz versorgt.
VORSICHTSMASSNAHMEN UND SICHERHEIT
Achtung: Befolgen Sie die Anweisungen im Handbuch. Unsachgemäße Verwendung kann das Gerät beschädigen oder gefährliche Situationen für den Bediener verursachen.
Gefahr durch Hochspannung: Stromschlaggefahr.
Das Gerät wurde nach IEC/EN61010-1 für elektronische Messgeräte entwickelt. Führen Sie die in diesem Handbuch beschriebenen Verfahren aus, um Schäden zu vermeiden.

- Keine Messungen in feuchter Umgebung durchführen.
- Keine Messungen in Gegenwart explosiver oder brennbarer Gase oder Materialien sowie in staubiger Umgebung durchführen.
- Den zu prüfenden Stromkreis nicht berühren, wenn keine Messung ausgeführt wird. Freiliegende Metallteile und unbenutzte Messanschlüsse nicht berühren.
- Keine Messung durchführen, wenn am Gerät eine Anomalie wie eine Verformung festgestellt wird.

Die maximale AC-Eingangsspannung beträgt 440V. Keine Spannungen messen, die die in diesem Handbuch und auf dem Gerät angegebenen Grenzwerte überschreiten. Eine Überschreitung kann zu einem Stromschlag und zur Beschädigung des Geräts führen.
RESET: Beide Tasten FUNC gleichzeitig zwei Sekunden gedrückt halten und auf den Signalton warten. Dadurch wird Rapid Pro MAX auf die Werkseinstellungen zurückgesetzt und der gesamte Speicher gelöscht. Nur bei einer Fehlfunktion verwenden.

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

ENGLISH

INTRODUCTION

Congratulations on your purchase of the RAPID PRO Limited Edition the pocket-sized multifunction for electrical installations verification produced in only 500 numbered examples **MADE IN ITALY.**
The RAPID PRO LE represents a new frontier in verification instruments for electrical installations, and thanks to the UNIKS Digitaloop™ patent, it has evolved to include measurements in both **civil and industrial** settings. In addition to being used as a multimeter in TRMS and Receptacle Test, it enables electrical safety tests (RCD, LOOP L-Pe - L-N) in accordance with the STANDARDS IEC61557-3 and IEC61557-6.
It is equipped with a 1.77" TFT Display. , of internal memory and a SUPERCAP to power it even when disconnected from the mains.

PRECAUTIONS AND SAFETY MEASURES

⚠ Caution: Follow the instructions in the manual; improper use could cause damage to the instrument or create dangerous situations for the operator.

⚠ High Voltage Hazard: electrical shock hazards

The instrument is designed in accordance with IEC/EN61010-1, relating to electronic measuring instruments. To avoid damaging the instrument, carry out the procedures described in this manual.

- Do not make measurements in humid environments.
- Do not make measurements in the presence of explosive, combustible gases or materials, or in dusty environments.
- Avoid contact with the circuit under test if you are not making measurements. Avoid contact with exposed metal parts, unused measurement terminals, etc.
- Do not make any measurement if any abnormality is found in the instrument such as, deformation,

⚠ **The maximum input AC voltage is 440V . Do not measure voltages that exceed the limits given in this manual and printed on the instrument. Exceeding the voltage limits could cause electrical shock to the user and damage to the instrument.**

⚠ **Product RESET procedure: Press and hold both buttons FUNC ▶ simultaneously for two seconds and wait until you hear a beep. This procedure will reset the Rapid Pro MAX to its factory settings and erase all memory. Use this procedure only in the event of a malfunction.**

28

DEUTSCH

ALLGEMEINE BESCHREIBUNG

RAPID PRO LE führt folgende Messungen aus:
1. L-N-Spannung in TRMS oder Drehstromspannung mit Zubehör
2. Frequenz der Netzspannung
3. RCD-Prüfung Typ A, AC und F bis 1A
4. Allgemeine und selektive RCD-Prüfung
5. Prüfstrom IΔn 30mA, 100mA, 300mA, 500mA, 650mA und 1A
6. RCD-AUTO-Prüfmodi
7. RCD-Rampenprüfung Typ A, AC und F nur bei 30mA
8. Messung der Berührungsspannung Uc
9. Z LOOP L-PE, Erdschleifenimpedanz ohne RCD-Auslösung
10. Prospektiver Erdschlussstrom IPEFC
11. Leitungsimpedanz Z L-N oder Drehstromimpedanz Z L-L
12. Prospektiver Kurzschlussstrom ISC
13. Angenommener Kurzschlussstrom Isc
14. Spannungsoberschwingungen bis zur 50. Ordnung
15. THD% der Spannung
16. Grundfrequenz und alle Oberschwingungen
17. Steckdosentest (Steckdosenverdrahtung)

Jede Funktion wird mit einer eigenen Taste gewählt. Die Funktionstasten ändern Messparameter und blättern durch die Oberschwingungen.
Die interne SUPERCAP-AUTO-POWER-Funktion hält RAPID PRO LE auch nach der Trennung vom Netz eingeschaltet. Bei vollständig geladenem SUPERCAP kann das Laden etwa 45 Sekunden dauern. So lassen sich nach der RCD-Auslösung die Auslösezeit und die Displaywerte auch ohne Netzanschluss ablesen.
Alle Messergebnisse werden mit OK oder NO OK sowie einem GRÜNEN oder ROTEN Balken in der Displaymitte angezeigt. Der Steckdosentest erkennt typische Verdrahtungsfehler wie NO PE sowie vertauschte PHASE und NEUTRALLEITER. Der Fehler wird im VOLT-Display sowie bei RCD- und LOOP-Messungen durch das entsprechende Symbol angezeigt; Messungen sind auch ohne Drehen des Geräts in der Steckdose möglich.
AUTO POWER ist in den Funktionen LOOP L-PE und LOOP Line L-N deaktiviert.

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

GENERAL DESCRIPTION

The RAPID PRO LE performs the following measurements:

1. L-N Voltage in TRMS or Three Phase Voltage with Accessory
2. Frequency of Line Voltage
3. RCD Testing (RCD) A, AC and F up to 1A
4. General and Selective RCD Testing
5. Test Current IΔn 30mA, 100mA, 300mA, 500mA, 650mA and 1A
6. RCD AUTO test modes.
7. RCD RAMP testing A, AC and F only 30mA
8. Measurement of Contact Voltage Uc
9. Z LOOP L-PE No-trip earth loop impedance test
10. IPEFC Prospective Earth Fault Current.
11. Z LINE Impedance Z L-N or Z L-L three-phase impedance
12. ISC prospective short-circuit current
13. Assumed Short Circuit Current Isc
14. Voltage harmonics up to the 50th
15. Voltage THD% (Line Harmonic Distortion)
16. Fundamental frequency and all harmonics
17. Socket Test (socket wiring)

ENGLISH

Each of these functions can be selected by a special button. There are also function keys, to change measurement parameters or scroll through harmonics. The instrument is also equipped with an **AUTO POWER** function via an internal **SUPERCAP** that allows the RAPID PRO LE to be kept on even when it is not connected to the grid.
Normally charging can take about 45 seconds when the SUPER CAP is fully charged.
This function makes it possible to read the value of the differential trip time after the trip or to conveniently read the values on the display by disconnecting the instrument from the power supply.
All measurement outcomes are indicated with OK and NO OK result through a **GREEN** or **RED** bar in the center of the Display.
The Socket Test function detects common wiring problems such as missing connection to **EARTH (NO PE)** or reversed PHASE and NEUTRAL.
The 'inverted PHASE and NEUTRAL error will be indicated in the VOLT Display, and the RAPID PRO LE will allow you to make all measurements even without inverting the instrument in the socket.
It will also continue to be indicated in RCD and LOOP measurements by the symbol

The Auto Power function is disabled in the LOOP L-Pe and LOOP Line L-N functions.

29

DEUTSCH

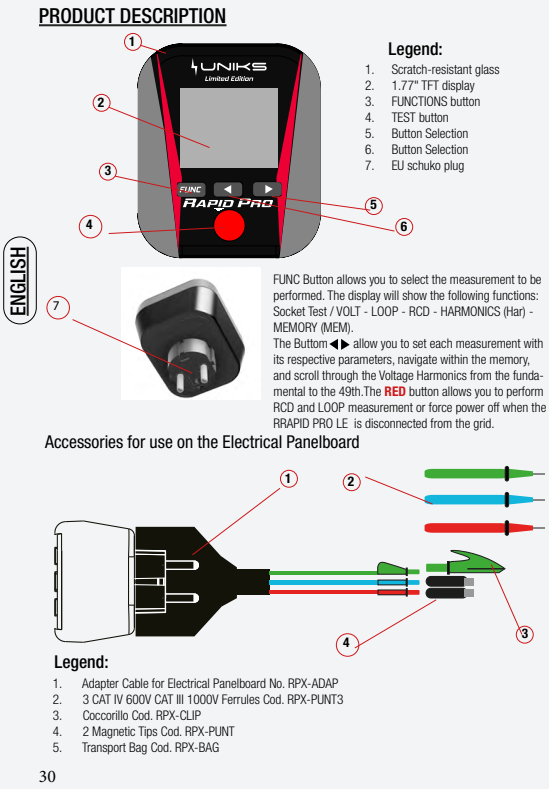
PRODUKTBESCHREIBUNG

Legende:
1. Kratzfestes Glas
2. 1.77"-TFT-Display
3. Taste FUNCTIONS
4. Taste TEST
5. Auswahltaste
6. Auswahltaste
7. EU-Schuko-Stecker

Mit der Taste FUNC wird die auszuführende Messung gewählt. Auf dem Display erscheinen: Steckdosentest / VOLT – LOOP – RCD – HARMONICS (Har) – MEMORY (MEM). Mit den Auswahltasten werden die jeweiligen Messparameter eingestellt, der Speicher durchsucht und die Spannungsoberschwingungen von der Grundschwingung bis zur 49. Ordnung durchlaufen. Die ROTE Taste startet die RCD- und LOOP-Messung oder erzwingt das Ausschalten, wenn RAPID PRO LE vom Netz getrennt ist.

Zubehör für den Einsatz am Schaltschrank:
1. Adapterkabel für Schaltschrank, Nr. RPX-ADAP
2. 3 Prüfspitzen CAT IV 600V / CAT III 1000V, Art.-Nr. RPX-PUNT3
3. Krokodilklemme, Art.-Nr. RPX-CLIP
4. 2 magnetische Prüfspitzen, Art.-Nr. RPX-PUNT
5. Transporttasche, Art.-Nr. RPX-BAG

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

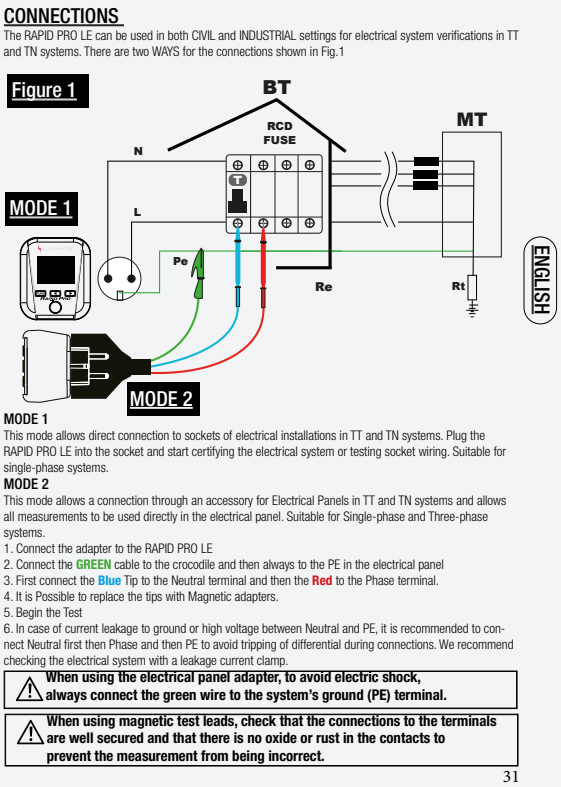


DEUTSCH

ANSCHLÜSSE

RAPID PRO LE kann für die Prüfung elektrischer Anlagen in privaten und industriellen Umgebungen sowie in TT- und TN-Systemen eingesetzt werden. Abb. 1 zeigt zwei Anschlussarten.
MODUS 1
Direkter Anschluss an Steckdosen elektrischer Anlagen in TT- und TN-Systemen. RAPID PRO LE in die Steckdose stecken und mit der Anlagenprüfung oder der Kontrolle der Steckdosenverdrahtung beginnen. Für Einphasensysteme.
MODUS 2
Anschluss über das Zubehör für elektrische Schaltschränke in TT- und TN-Systemen. Damit können sämtliche Messungen direkt im Schaltschrank durchgeführt werden. Für Einphasen- und Drehstromsysteme.
1. Adapter an RAPID PRO LE anschließen.
2. Das GRÜNE Kabel mit der Krokodilklemme und anschließend immer mit PE im Schaltschrank verbinden.
3. Zuerst die blaue Prüfspitze mit dem Neutralleiter, danach die rote Prüfspitze mit der Phase verbinden.
4. Die Prüfspitzen können durch magnetische Adapter ersetzt werden.
5. Prüfung starten.
6. Bei Erdableitstrom oder hoher Spannung zwischen Neutralleiter und PE zuerst Neutralleiter, dann Phase und zuletzt PE verbinden, damit der RCD beim Anschließen nicht auslöst. Die Anlage sollte mit einer Leckstromzange geprüft werden.
Achtung: Bei Verwendung des Schaltschrankadapters das grüne Kabel immer mit dem Schutzleiteranschluss PE verbinden. Bei magnetischen Prüfspitzen auf festen Sitz sowie oxid- und rostfreie Kontakte achten, um fehlerhafte Messungen zu vermeiden.

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert



DEUTSCH

SPANNUNGSMESSUNG UND STECKDOSENTEST

Diese Funktion misst die TRMS-Spannung zwischen Phase und Neutralleiter oder in Drehstromsystemen zwischen zwei Phasen und prüft gleichzeitig die Steckdosenverdrahtung.

Bedienung

RAPID PRO LE in die Steckdose stecken oder mit dem Adapter am Schaltschrank anschließen (Abb. 1). Mit FUNC die Funktion VOLT wählen. Der Spannungswert wird nur angezeigt, wenn der Steckdosentest korrekt ist und die Berührungsspannung <50V beträgt. Der GRÜNE Balken zeigt „Socket OK“. Mit der Auswahltaste lassen sich die Frequenz, anschließend Seriennummer und Firmware-Version anzeigen; die andere Taste führt zurück.

TRMS-Spannung

Anzeige der TRMS-Spannung zwischen Phase und Neutralleiter in einem TT- oder TN-System. Der GRÜNE Balken bestätigt die korrekte Steckdosenverdrahtung.

Dreiphasige TRMS-Spannung

Anzeige der TRMS-Spannung zwischen zwei Phasen in einem dreiphasigen TT- oder TN-System sowie der Signalfrequenz.

Seriennummer und Kalibrierzertifikat

Jedes RAPID PRO LE besitzt eine Seriennummer und eine Firmware-Version. Damit kann die App RAPIDPROREPORT Messungen und das KALIBRIERZERTIFIKAT herunterladen.

Zweiphasensystem

Beispiel der automatischen Erkennung eines typischen Zweiphasensystems im historischen Zentrum von ROM. Nach der Erkennung können RCD- und LOOP-Messungen ausgeführt und BERICHTE erstellt werden.

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

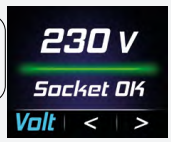
VOLTAGE MEASUREMENT AND SOCKET TEST

This function measures the voltage in TRMS (True Effective Value) between Phase and Neutral or between Phase and Phase in 3-phase systems and simultaneously tests the socket wiring.

Operation

Plug the RAPID PRO LE into the socket or connect it to the electrical panel with the adapter (Fig.1) and press the FUNC button to select the VOLT measurement. The voltage value will be shown only if the socket test is correct and the contact voltage is <50V. The **GREEN** bar on the display indicates that the TEST is "**Socket OK**." It is also possible to display the Frequency of the voltage by pressing ▶ and if you press the key ▶ again, the serial number and Firmware version will be displayed.
The Key goes back. ◀

ENGLISH



TRMS Voltage
The measurement indicates the TRMS voltage value between Phase and Neutral in a TT or TN system and the **GREEN** bar indicates that the outlet wiring is correct

Three-phase TRMS Voltage
The measurement indicates the TRMS voltage value between Phase and Phase in a TT or TN Three-phase system and the **GREEN** bar indicates the frequency of the signal.

Serial Number and Calibration Certificate
Each RAPID PRO LE has a serial number and Firmware version that will allow the RAPIDPROREPORT APP to download measurements and the **CALIBRATION CERTIFICATE.**

Two-Phase System
Example of automatic recognition of a typical Biphase system in the historic center of ROME.
Once the two-phase system has been identified, it will be possible to proceed with the measurements of
RCD and LOOP and generate REPORTS.

32

DEUTSCH

VERDRAHTUNGSFEHLER

RAPID PRO LE in die Steckdose stecken und die durch den ROTEN Balken angezeigten Fehlermeldungen prüfen. Beim Betrieb mit Schaltschrankzubehör können durch nicht gleichzeitig oder falsch angeschlossene Leitungen kurzzeitig Meldungen erscheinen.

FEHLER NO PE

Der Schutzleiteranschluss fehlt. Dies ist der häufigste und für die elektrische Sicherheit gefährlichste Fehler. Lösung: Steckdose öffnen und Anschlüsse prüfen oder das gesamte Erdungssystem und seine Verbindungen kontrollieren.

PHASE UND NEUTRALLEITER VERTAUSCHT

Die Phase liegt gegenüber dem Neutralleiter an der vertauschten Position. Bei LOOP- und RCD-Messungen erscheint das Symbol. Lösung: Steckdose öffnen und Anschlüsse prüfen.

BERÜHRUNGSSPANNUNG >50V

Vc>50V verhindert die Fortsetzung der Prüfung. Ursache ist eine Potentialdifferenz zwischen gleichzeitig berührbaren Teilen, der der Körper bei einem Isolationsfehler ausgesetzt sein kann. Lösung: Auf Ableitströme prüfen.

NO NEUTRAL ODER L-PE VERTAUSCHT

Der Neutralleiter ist nicht angeschlossen oder Phase und PE sind vertauscht. Lösung: Bei Bedarf Steckdose öffnen und Anschlüsse prüfen.

Bei vertauschter Phase und Neutralleiter muss RAPID PRO LE nicht gedreht werden; RCD-, LOOP- und Oberschwingungsmessungen bleiben möglich. Beim Anschluss über das Schaltschrankzubehör können Meldungen erscheinen, solange die Leitungen noch nicht gleichzeitig verbunden sind, z. B. NO PE bis zum Anschluss von PE.

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

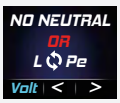
WIRING ERRORS

Plug the RAPID PRO LE into the socket and check the wiring error messages indicated by the **RED** bar. During operation with switchboard accessory, errors may appear for a short time due to connections through incorrect or non-simultaneous leads.

NO PE ERROR
This error indicates that the Ground connection is missing. It represents the most common and most dangerous error for electrical safety.
Solution: Disassemble the Receptacle and check the connections or Check the entire Earth system and all its connections.

INVERTED PHASE and NEUTRAL ERROR
This error indicates that the position of the Phase is reversed with respect to the Neutral. Often this type of Error is not considered dangerous.
During LOOP and RCD measurements the symbol will be displayed
Solution: Disassemble the Receptacle and check the connections.

CONTACT VOLTAGE >50V
Error Vc>50V will not allow testing to continue due to a potential difference that is established between two simultaneously accessible such as a live metal ground and the ground to which the subjected to the human body in the event of an insulation fault.
Solution: Check for the presence of leakage currents.



NO NEUTRAL ERROR or L-PE INVERTED
This error indicates that the neutral is not connected or the Phase and PE are Reversed
Solution: If necessary disassemble the Receptacle and check the connections.

ENGLISH

The Phase and Neutral Reversed error does not force you to turn the connection of the RAPID PRO LE and you will be able to continue 'use in the RCD, LOOP and Harmonics

When connecting via switchboard accessory the RAPID PRO LE can indicate wiring errors due to the connections not being made at the same time.
Ex. You connect the Phase then the Neutral to the switchboard then for a short time the Display will indicate NO PE error until the PE connection is made.

33

DEUTSCH

RCD-AUSLÖSEZEIT

Diese Funktion prüft RCDs nach IEC/EN 61557-6, EN61008 und EN61009. Die Prüfung erfolgt mit IΔn 30mA, 100mA, 300mA, 500mA, 650mA und 1A an allgemeinen und selektiven RCDs der Typen A, AC und F.
RAPID PRO LE in die Steckdose stecken oder mit dem Adapter am Schaltschrank anschließen (Abb. 1). Mit FUNC RCD TIME wählen. RCD-Typ und Prüfstrom IΔn mit den Auswahltasten einstellen und die Prüfung mit der ROTEN Taste starten. Vor Erzeugung des Prüfstroms misst der Pre-Test die Berührungsspannung. Bei <50V wird der Prüfstrom erzeugt, andernfalls erscheint Vc>50V.
Ergebnisse der Auslösezeit:
1. t < 300ms | 30mA-100mA-300mA-500mA 1A | OK, GRÜNER Balken
2. t > 400ms | 30mA-100mA-300mA-500mA 1A | NO OK, ROTER Balken
3. t zwischen 300ms und 400ms | 30mA-100mA-300mA-500mA 1A | NO OK, ROTER Balken
Das Display zeigt die RCD-Auslösezeit in ms und die Berührungsspannung Vc. Bei >50V wird die RCD-Prüfung nicht ausgeführt. Eine Auslösezeit oberhalb der Bezugsnorm wird mit ROTEM Balken als NO OK angezeigt.
Selektiv
Auswahltaste 1 Sekunde gedrückt halten, bis das weiße Feld S erscheint. RCD-Typ A, AC oder F und Prüfstrom einstellen; mit der ROTEN Taste starten. Ein 30-Sekunden-Timer läuft vor der Prüfung des selektiven RCD ab.
Hinweis: Beim RCD-Test kann bereits der Pre-Test-Strom den RCD auslösen, wenn ein Ableitstrom vorhanden ist.

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

RCD TIME TESTING

This function performs the test according to IEC/EN 61557-6, EN61008 and EN61009 and RCD devices. The test is performed with a test current IΔn of 30mA, 100mA ,300mA, 500mA , 650mA and 1A for RCD devices of TYPE A , AC and F General and Selective.

Plug the RAPID PRO LE into the socket or connect it to the switchboard with the adapter (Fig.1) and press the FUNC button to select RCD TIME measurement. Press the button ◀ to select the RCD type and the button ▶ to select the test current IΔn.
Perform the TEST by pressing the **RED** key.
Before generating the selected test current, the RAPID PRO LE performs a measurement called Pre-Test to check the contact voltage, and then if the contact voltage is <50V the test current will be generated otherwise the Error Vc>50V will be indicated (See Page 9).

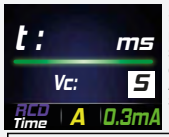
Table of Outcomes related to tripping time

ENGLISH

	Time	Current IΔn	Result
1.	t < 300ms	30mA-100mA-300mA-500mA 1A	OK with **GREEN** bar
2.	t > 400ms	30mA-100mA-300mA-500mA 1A	NO OK with **RED** bar
3.	t between 300ms and 400ms	30mA-100mA-300mA-500mA 1A	NO OK with **RED** bar

The display indicates the RCD trip TIME in ms and the **GREEN** bar indicates the OK outcome .
Vc indicates the contact voltage.
If the detected contact voltage is >50V, the differential test will not be performed and the display will indicate the **RED** bar

The display indicates the RCD trip TIME beyond the reference NORM and the **RED** bar indicates the 'outcome is NO OK.
Vc indicates the contact voltage.



Selective

Press and hold the button ◀ for 1 second and the white box marked **S (selective)** will appear. Set the RCD type A, AC or F and the test current then press the RED button to start the test.
A 30-second timer will appear in the white box, which will start the SELECTIVE RCD device test after it is completed.

⚠ **During the RCD test, the generation of the Pre-Test current may trip the RCD device if a leakage current is present.**

34

DEUTSCH

RCD-RAMPENPRÜFUNG

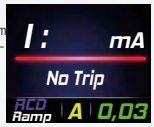
RAPID PRO LE in die Steckdose stecken oder mit dem Adapter am Schaltschrank anschließen (Abb. 1) und mit FUNC die Messung RCD RAMP wählen. Mit der Auswahltaste den RCD-Typ einstellen.
Die Prüfung kann nur mit IΔn 30mA für Typ A, AC und F durchgeführt werden.
Die Prüfung mit der ROTEN Taste starten. Der ansteigende Prüfstrom wird auf dem Display angezeigt. Ein RCD sollte normalerweise bei einem Strom zwischen IΔn/2 und IΔn auslösen.
Auslösestrom 28mA: positives Ergebnis, GRÜNER Balken.
Auslösestrom >IΔn: negatives Ergebnis, ROTER Balken.
AUTOMATISCHE RCD-SEQUENZ
RAPID PRO LE in die Steckdose stecken oder mit dem Adapter am Schaltschrank anschließen und mit FUNC RCD AUTO wählen. RCD-Typ und Prüfstrom IΔn mit den Auswahltasten einstellen. Die Prüfung mit der ROTEN Taste starten. Nach jedem Zurücksetzen des RCD führt das Gerät die nächste Prüfung aus, sobald Netzspannung erkannt wird; die ROTE Taste muss nicht erneut gedrückt werden.
Die Messung besteht aus 6 oder 4 Auslöseschritten:
SCHRITT 1 | IΔn x1 0° | OK bei <300 ms | alle IΔn-Werte
SCHRITT 2 | IΔn x1 180° | OK bei <300 ms | alle IΔn-Werte
SCHRITT 3 | IΔn x5 0° | OK bei <40 ms | nur 30mA und 100mA
SCHRITT 4 | IΔn x5 180° | OK bei <40 ms | nur 30mA und 100mA
SCHRITT 5 | IΔn x1/2 0° | OK bei >1000 ms | alle IΔn-Werte
SCHRITT 6 | IΔn x1/2 180° | OK bei >1000 ms | alle IΔn-Werte
Beispiel mit IΔn 30mA: Die x5-Prüfung ist gemäß Tabelle verfügbar. Negative Ergebnisse werden ROT, positive GRÜN angezeigt. NOT zeigt an, dass die x1/2-Prüfung nicht bestanden wurde. Mit der Taste für den selektiven RCD erscheint das weiße Feld.
Beispiel mit IΔn 1A: Die x5-Prüfung ist gemäß Tabelle nicht verfügbar.

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

RCD RAMP TESTING

Plug the RAPID PRO LE into the socket or connect it to the switchboard with the adapter (Fig. 1) and press the FUNC key to select RCD RAMP measurement. Press the button ▶ to select the RCD type.
The Test can be performed only with the current IΔn of 30mA type A, AC and F.
Perform the TEST by pressing the **RED** key, the advance of the current increment will be shown on the display. Normally a RCD device should operate with a current between IΔn/2 and IΔn.

Tripping current 28mA Positive outcome indicated by the **GREEN bar**



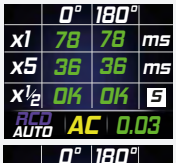
Tripping Current >IΔn Negative outcome indicated by the **RED bar**

ENGLISH

RCD AUTO SEQUENCE

Plug the RAPID PRO LE into the socket or connect it to the switchboard with the adapter (Fig...) and press the FUNC button to select RCD AUTO measurement. Press the button ◀ to select the RCD type and the button to select the test current IΔn. Perform the TEST by pressing the **RED** key, each time the RCD device is reset, the instrument will perform the next test as soon as it measures line voltage without pressing the **RED** key.
The measurement is performed with 6 or 4 STEP of differential tripping:

MEASUREMENT	GENERATION IΔn	OUTCOMES	STEP ENABLED
STEP 1	IΔn x1 0°	OK if <300 ms	All values of IΔn
STEP 2	IΔn x1 180°	OK if <300 ms	All values of IΔn
STEP 3	IΔn x5 0°	OK if <40 ms	**30mA and 100mA only**
STEP 4	IΔn x5 180°	OK if <40 ms	**30mA and 100mA only**
STEP 5	IΔn x1/2 0°	OK if >1000 ms	All values of IΔn
STEP 6	IΔn x1/2 180°	OK if >1000 ms	All values of IΔn



Example of the RCD AUTO function with test current IΔn of 30mA.
The x5 test is available as shown in the table above.
The 'Negative outcome of the measurement STEP is indicated by the **RED** valuewhile the **GREEN** values have a positive outcome
NOT indicates that the test at x1/2 did not pass.
Press the button ▶ to enable the Selective RCD function, and the white box will appear.

Example of the RCD AUTO function with IΔn test current of 1A.
The x5 test will not be available as shown in the table above.
The 'Negative outcome of the measurement STEP is indicated by the **RED** valuewhile the **GREEN** values have a positive outcome
NOT indicates that the test at x1/2 did not pass.

35

DEUTSCH

LOOP · DIGITALOOP™

RAPID PRO LE verwendet das patentierte Verfahren DIGITALOOP™ für alle LOOP-Messungen, darunter die Erdschleifenimpedanz ohne RCD-Auslösung und die Leitungsimpedanz nach IEC/EN 61557-3.
Die erste Generation Rapid Pro nutzt DIGITALOOP™ für die L-PE-Erdschleifenimpedanz mit etwa 15mA Prüfstrom, damit der RCD nicht auslöst. Das Ergebnis ist präzise und störfest. Für die Messung zwischen Phase und Neutralleiter wurde das Verfahren weiterentwickelt. Übliche L-N-Messungen und die Ermittlung des prospektiven Kurzschlussstroms benötigen Prüfströme von mehreren zehn Ampere und damit große, teure Komponenten. UNIKS ergänzte DIGITALOOP™ um neue Berechnungen mit künstlicher Intelligenz, LOOP AI. So erreicht RAPID PRO LE die Messleistung eines Multifunktionsprüfgeräts in einem kompakten, innovativen Format.
Bedienung
RAPID PRO LE in die Steckdose stecken oder mit dem Adapter am Schaltschrank anschließen (Abb. 1). Mit FUNC LOOP wählen. LPE für die Erdschleifenimpedanz ohne Auslösung oder LN für Leitungsimpedanz und prospektiven Kurzschlussstrom ISC beziehungsweise Erdschlussstrom wählen. Mit der Auswahltaste AI oder LOW wählen; LOW ist nur bei LPE verfügbar.
LOW verhindert auch bei Ableitströmen das Auslösen des RCD; die Genauigkeit beträgt 8% ± 12 dgt. Die Messung erst starten, wenn der weiße DIGITALOOP™-Kreis die Einschwingphase beendet hat. Der BLAUE Balken zeigt Netzstörungen und Messdauer: kurz bei geringer, lang bei hoher Störung. Mit der ROTEN Taste prüfen. Der Pre-Test erzeugt den Prüfstrom nur bei Vc <50V; andernfalls erscheint Vc>50V.

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

ENGLISH

LOOP

DIGITALOOP™

TheRAPID PRO LE uses the patented DIGITALOOP™ method to perform all LOOP measurements such as No-trip earth loop impedance and line impedance according to **IEC/EN 61557-3.**
The first generation Rapid Pro uses **Digitaloop™** only for No-trip earth loop impedance by measuring the fault loop between L-PE with a current of about 15mA so as not to trip the differential device, and the result is an accurate measurement that is immune to noise, but to measure the fault loop impedance between Phase and Neutral something had to be added to this method.
Normally the measurement of impedance between Phase and Neutral and prospective short-circuit current requires that a current on the order of tens of amperes be generated making it very bulky and expensive.
UNIKS found the solution by further improving the DIGITALOOP™ algorithm by adding new artificial intelligence calculations called **LOOP AI** and thanks innovation we were able to perform the same measurement as the Multifunction products inside the portable and innovative design of the RAPID PRO LE .

Operation

Plug the RAPID PRO LE into the socket or connect it to the electrical panel with the adapter (Fig.1) and press the FUNC button to select LOOP measurement. Press the button ◀ to select **LPE** then No-trip earth loop impedance test or **LN** for the measurement of 'line impedance and ISC prospective short-circuit current or Prospective Earth Fault Current.
Press the button ▶ to choose the mode of current generation **LOW** or **AI** (LOW is present only if LPE is selected).
The **LOW** mode is very important during the No-trip earth loop impedance test because it prevents the RCD from tripping even in the presence of leakage currents but the accuracy will be 8% ± 12 dgt.
The measurement can be taken only after the white circle has finished its settling of the DIGITALOOP™ also the **BLUE** bar will contract if the noise in the line under test is small and extend if the noise is big.
Perform the TEST by pressing the **RED** button.
Before generating the selected test current, the RAPID PRO LE performs a measurement called Pre-Test to check the contact voltage and then if the contact voltage is <50V the test current will be generated otherwise the Error Vc>50V will be indicated (See Page 9).

Settling circle of the DIGITALOOP™

Indicator bar for mains noise and measurement duration after pressing the RED button

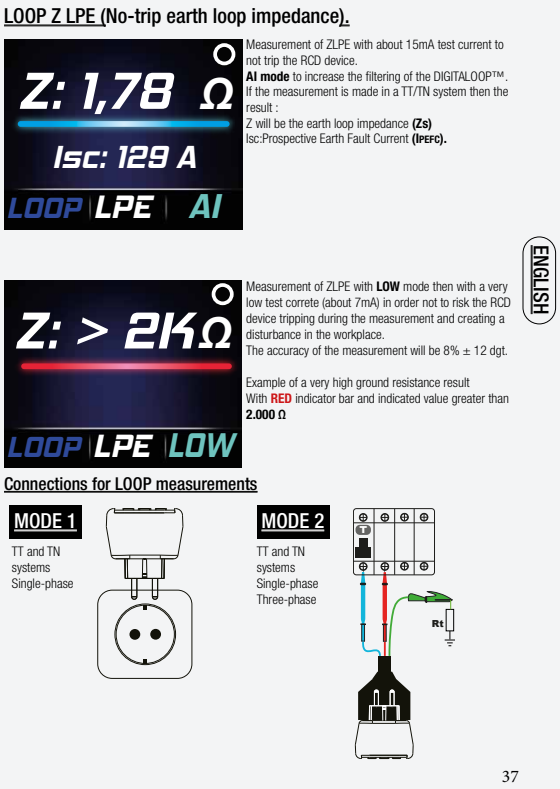
36

DEUTSCH

LOOP Z L-PE · ERDSCHLEIFENIMPEDANZ OHNE AUSLÖSUNG

Messung von Z L-PE mit etwa 15mA Prüfstrom, damit der RCD nicht auslöst. Der AI-Modus erhöht die Filterung von DIGITALOOP™.
In TT- und TN-Systemen gilt:
Z = Erdschleifenimpedanz Zs
Isc = prospektiver Erdschlussstrom IPEFC
LOW-MODUS
Messung von Z L-PE mit sehr niedrigem Prüfstrom von etwa 7mA. Dadurch wird das Risiko einer RCD-Auslösung und einer Betriebsunterbrechung weiter reduziert. Die Genauigkeit beträgt 8% ± 12 dgt.
Beispiel eines sehr hohen Erdungswiderstands: ROTER Balken und Messwert größer als 2.000 Ω.
Anschlüsse für LOOP-Messungen:
MODUS 1: TT- und TN-Systeme, einphasig.
MODUS 2: TT- und TN-Systeme, einphasig oder dreiphasig.

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

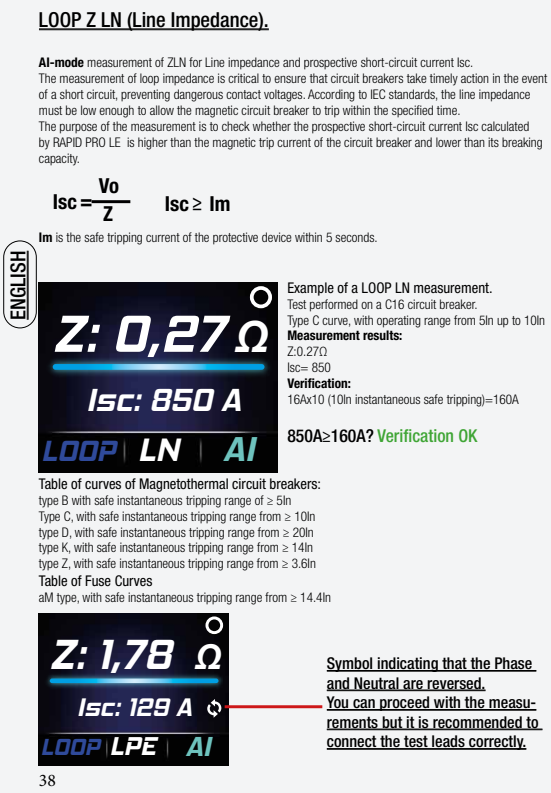


DEUTSCH

LOOP Z L-N · LEITUNGSIMPEDANZ

AI-Messung von Z L-N für Leitungsimpedanz und prospektiven Kurzschlussstrom Isc. Die Schleifenimpedanz muss so niedrig sein, dass der Leitungsschutzschalter bei einem Kurzschluss innerhalb der vorgegebenen Zeit auslöst und gefährliche Berührungsspannungen vermieden werden. Geprüft wird, ob der von RAPID PRO LE berechnete Isc größer als der magnetische Auslösestrom des Schutzschalters und kleiner als dessen Ausschaltvermögen ist.
Isc = Vo / Z; Isc ≥ Im. Im ist der sichere Auslösestrom der Schutzeinrichtung innerhalb von 5 Sekunden.
Beispiel LOOP L-N an einem Leitungsschutzschalter C16:
Kennlinie C, Betriebsbereich 5In bis 10In
Z:0.27Ω
Isc=850A
16Ax10 (sichere unverzögerte Auslösung 10In)=160A
850A≥160A: Prüfung OK
Kennlinien von Leitungsschutzschaltern, sichere unverzögerte Auslösung:
Typ B ≥ 5In
Typ C ≥ 10In
Typ D ≥ 20In
Typ K ≥ 14In
Typ Z ≥ 3.6In
Sicherung aM ≥ 14.4In
Das Symbol für vertauschte Phase und Neutralleiter erlaubt die Fortsetzung der Messungen; die Messleitungen sollten dennoch korrekt angeschlossen werden.

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert



LOOP Z LN (Line Impedance).

AI-mode measurement of ZLN for Line impedance and prospective short-circuit current Isc.
The measurement of loop impedance is critical to ensure that circuit breakers take timely action in the event of a short circuit, preventing dangerous contact voltages. According to IEC standards, the line impedance must be low enough to allow the magnetic circuit breaker to trip within the specified time.
The purpose of the measurement is to check whether the prospective short-circuit current Isc calculated by RAPID PRO LE is higher than the magnetic trip current of the circuit breaker and lower than its breaking capacity.

$$Isc = \frac{Vo}{Z} \qquad Isc \geq Im$$

Im is the safe tripping current of the protective device within 5 seconds.

ENGLISH

Example of a LOOP LN measurement.
Test performed on a C16 circuit breaker.
Type C curve, with operating range from 5In up to 10In
Measurement results:
Z:0.27Ω
Isc= 850
Verification:
16Ax10 (10In instantaneous safe tripping)=160A

850A≥160A? Verification OK

Table of curves of Magnetothermal circuit breakers:
type B with safe instantaneous tripping range of ≥ 5In
Type C, with safe instantaneous tripping range from ≥ 10In
type D, with safe instantaneous tripping range from ≥ 20In
type K, with safe instantaneous tripping range from ≥ 14In
type Z, with safe instantaneous tripping range from ≥ 3.6In
Table of Fuse Curves
aM type, with safe instantaneous tripping range from ≥ 14.4In

Symbol indicating that the Phase and Neutral are reversed.
You can proceed with the measurements but it is recommended to connect the test leads correctly.

38

DEUTSCH

Har SPANNUNGSOBERSCHWINGUNGEN

Diese Funktion analysiert die Qualität der Netzspannung und ihre Oberschwingungen bis zur 49. Ordnung.

- Fund zeigt Grundschwingung h1 (ROT), Frequenz (~50Hz) und THD% der Netzspannung.
- h2...50 zeigt TRMS-Spannung, Frequenz und prozentualen Anteil (%) der gewählten Oberschwingung gegenüber h1 bei 50Hz.

RAPID PRO LE an Steckdose oder Schaltschrank anschließen und mit FUNC Har wählen. Mit den Auswahltasten zu höheren Ordnungen oder zurück zu h1 wechseln. Nach der Trennung vom Netz können die Oberschwingungen bis zur vollständigen Entladung des SUPERCAP ausgewertet werden.

MEM · SPEICHER / BERICHT

Jede RCD- und LOOP-Messung wird automatisch in MEM gespeichert. Mit FUNC MEM wählen und mit den Auswahltasten durch die Ergebnisse blättern. Zum Löschen beide Tasten gleichzeitig drücken; DELETE MEMORY erscheint, mit YES bestätigen.

Es können 64 aufeinanderfolgende Messungen gespeichert werden. Die ROTE Taste erzeugt den QR CODE für den BERICHT. Die letzte Messung wird in der ersten freien Zelle in aufsteigender Reihenfolge (1...64) gespeichert.

QR CODE mit der App RAPIDPROREPORT erfassen. Alle gespeicherten Messungen werden in einen BERICHT übernommen und können als PDF oder CSV exportiert werden.

Die Spalte N° zeigt die Messungsnummer, FUNC die Messung und ihre Einstellungen, Value das Ergebnis. RCD-Ergebnisse erscheinen GRÜN bei OK und ROT bei NO OK.

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

Har VOLTAGE HARMONICS

This function allows the quality of the mains voltage to be analyzed and its voltage harmonics to the 49th.

Test Mode:

- **Fund** Shows the Fundamental Harmonic h1 (color **RED**), its frequency (~50Hz) and THD% indicating the percentage of total harmonic distortion of the mains voltage (Fig. 2).
- **h2....50** Shows the TRMS voltage value of the selected harmonic (**RED** color), its Frequency and percentage (%) compared to the h1 Fundamental at 50Hz (Fig. 3)

Harmonics Function

Plug the RAPID PRO LE into the socket or connect it to the electrical panel with the adapter (Fig 1) and FUNC key to select Har measurement. Press the button ▶ to select higher order harmonics or press the button ▶ to return to 'h1 harmonic.

You will be able to disconnect the RAPID PRO LE from the 'power supply and conveniently analyze the harmonics until the SUPERCAP is fully discharged.

Fig.2

Fig.3

ENGLISH

MEM Memory / REPORT

Each performed measurement of RCD and LOOP will be automatically stored in the MEM section. Press the FUNC key to select MEM.

Press the or buttons ◀ ▶ to scroll through the stored measurements or press the and buttons ◀ ▶ simultaneously to clear the memory "DELETE MEMORY" will appear and choose YES to delete.

It will be possible to store 64 consecutive measurements.

Pressing the **RED** key will generate a QR CODE for REPORT generation (Fig.12). The 64 locations can be organized in temporal order . The 'last measurement will always be saved in the first free CELL in ascending order (1...64).

CREATE REPORT

Press the **RED** key to generate the QR CODE.
Frame the QR CODE with your smartphone using the RAPID PRO REPORT APP.
All saved measurements will be entered into a REPORT with the option to export to pdf or csv.
Download the RAPIDPROREPORT APP for iOS and Android systems.

MEMORY

The N° column indicates the number of the measurement.
The FUNC column indicates the saved measurement with its settings.
Value column indicates the 'outcome of the measurement.
The outcome of the RCD measurement is indicated :
GREEN if the outcome is OK
RED if the outcome is NO OK.

39

DEUTSCH

APP RAPIDPROREPORT

APP HERUNTERLADEN
RAPIDPROREPORT auf dem Smartphone installieren, um Messberichte zu erstellen, Messungen zu archivieren und das Kalibrierzertifikat herunterzuladen. Die App ist mit iOS und Android kompatibel.
Bedienung
Jede LOOP- und RCD-Messung wird automatisch in MEM gespeichert. Bis zu 64 Messungen werden in einem QR CODE mit allen Berichtsdaten zusammengefasst.
1. App installieren und Rapid Pro LE registrieren.
2. RAPID PRO LE an Spannung anschließen, MEM wählen und die ROTE Taste drücken; der QR CODE erscheint im Display.
3. Auf HOME Scan QR wählen und den QR CODE im Display erfassen, um Messungen zu laden.
4. Auf HOME CERTIFICATES wählen und den QR CODE erfassen, um das Kalibrierzertifikat zu laden.
5. Nach dem Laden die angegebene Taste drücken, um Messungen zu speichern oder den BERICHT zu erstellen.
6. Vor einer neuen Prüfung den Speicher von RAPID PRO LE löschen und die neuen Messungen durchführen.
7. Beide Auswahltasten gleichzeitig drücken; DELETE MEMORY erscheint, mit YES bestätigen.

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

RAPIDPROREPORT APP

APP Download
Install the RAPIDPROREPORT APP on your smart-phone to create your Measurement Reports, save your measurement archive and download the Calibration Certificate.
The APP is compatible with iOS and Android systems.

Scan to download the APP

Download on the App Store

ANDROID APP ON Google play

ENGLISH

APP operating procedure
Each LOOP and RCD measurement will be automatically stored in the MEM screen of the Rapid PRO LE.
You will be able to store 64 consecutive measurements which will generate a QRCode with all the information for your Reports.

1. Install the APP and perform the registration of your Rapid Pro LE
2. Connect the RAPID PRO LE to a voltage source and select the MEM function then press the **RED** button and the Qr Code will appear on the display (Fig.4).
3. On the HOME page of the APP press the Scan QR button (Fig.5) and frame the QR code in the RAPID PRO LE display to download the measurements.
4. On the HOME page of the APP press the CERTIFICATES button and frame the QR code in the RAPID PRO LE display to download the calibration certificate
5. Once the measurements have been downloaded Press the button ☰ to save the measurements or generate the REPORT
6. Before leaving for another certification, we recommend clearing the RAPID PRO LE's memory and performing the new verifications again.
7. Press the and buttons ◀ ▶ simultaneously to clear the memory "DELETE MEMORY" will appear and choose YES to clear.

Fig.4

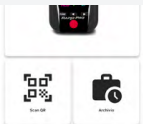


Fig.5

40

DEUTSCH

APP RAPIDPROREPORT

SCAN-QR-FUNKTION
Aktiviert die Smartphone-Kamera, um den QR CODE im Display von RAPID PRO LE zu erfassen und Messungen herunterzuladen.
MESSARCHIV
Heruntergeladene und gespeicherte Messungen sind im Archiv verfügbar.
ZERTIFIKATE
Aktiviert die Kamera, um den QR CODE zu erfassen und das Kalibrierzertifikat herunterzuladen.
HANDBÜCHER
Aktuelle Bedienungsanleitungen können heruntergeladen werden.
HERUNTERGELADENE MESSUNGEN BEARBEITEN
1. Messungen werden von 1÷64 aufgelistet; Ergebnis, Messwert und Parameter werden angezeigt.
2. Messung antippen, um einen Kommentar hinzuzufügen.
3. Von rechts nach links wischen, um Messung löschen anzuzeigen.
4. Unternehmen und Bediener werden in den App-Einstellungen eingetragen.
5. Die angegebene Taste zum Speichern oder Exportieren drücken.
6. Der Export umfasst das Zertifikat als PDF oder CSV zur Verarbeitung mit anderer Software.

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

DEUTSCH

EVSE-TEST

RAPID PRO LE kann mit dem optionalen Produkt EVCHECK verbunden werden, um Ladestationen für Elektrofahrzeuge nach folgenden Normen zu prüfen:
CE/EN60364-7-722
IEC/EN61010-1
IEC/EN61851-1
Neben den CP- und PP-Steuerprüfungen können alle in RAPID PRO LE verfügbaren Messungen ausgeführt werden, darunter RCD-Prüfungen Typ A, AC und F, LOOP-Impedanz L-PE und L-N, Oberschwingungen und Spannungsmessungen.
Bedienung:
1. TYPE-2-KABEL mit der Ladestation verbinden.
2. CP auf Position C stellen.
3. Rapid Pro LE an die Schuko-Steckdose des EVCHECK anschließen.
4. Messungen mit RAPID PRO LE gemäß Anleitung starten.

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

ENGLISH

EVSE TEST

The RAPID PRO LE can be connected to the optional EVCHECK product for testing electric vehicle charging stations according to the following STANDARDS:
CE/EN60364-7-722
IEC/EN61010-1
IEC/EN61851-1

In addition to the CP and PP Control tests, all measurements available in the RAPID PRO LE can be performed, such as RCD type A, AC, and F tests, L-PE and L-N LOOP Impedance, harmonics, and voltage measurements.

Operation:
1. Connect the TYPE 2 CABLE to the charging station
2. Set the CP to position C
3. Connect the Rapid Pro LE to the EVCHECK's Schuko socket
4. Start the measurements from the RAPID PRO LE as per the manual

42

DEUTSCH

TECHNISCHE DATEN

EINGANG:
Messkategorie: CAT III 300V gegen Erde
Spannungsbereich: 190 BIS 440V AC
Frequenzbereich: 42 ÷ 69 Hz
Maximale Eingangsstromaufnahme: <25mA
Schwankung der Eingangsspannung: 10%
Normen:
Bezugsnormen: IEC/EN61557-3; IEC/EN61557-6
Sicherheitsnormen: IEC/EN61010-1; IEC/EN61010-2-030
EMV: IEC/EN61326-1
Display und Speicher:
Display: TFT-Display 1.77"
Speicherplätze: 64
Umgebungsbedingungen:
Verwendung: Innenbereich
Höhe: 0 ÷ 2000 m
Referenztemperatur: 0°C ÷ 23°C
Betriebstemperatur: 0°C ÷ 40°C
Zulässige relative Feuchte: <80%RH
Lagertemperatur: -20°C ÷ 60°C
Lagerfeuchte: <80%RH
Verschmutzungsgrad: 2
Mechanische Eigenschaften:
Abmessungen: (81.5 x 70 x 83) mm
Gewicht: 120g

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

TECHNICAL DATA

INPUT:

Measurement Category:	CAT III 300V to ground
Voltage Range:	190 TO 440V AC
Frequency Range	42 ÷ 69 Hz
Maximum current input:	<25mA
Input voltage fluctuation	10%

Standards:

Reference Standards:	IEC/EN61557-3 IEC/EN61557-6
Safety Standards :	IEC/EN61010-1 IEC/EN61010-2-030
EMC:	IEC/EN61326-1

Display and Memory:

Display:	TFT 1.77" Display
Memory Locations:	64

Environmental Conditions

Usage:	internal
Altitude:	0 ÷ 2000 m
Reference temperature:	0°C ÷ 23°C
Usage temperature:	0°C ÷ 40°C
Allowable relative humidity:	<80%RH
Storage temperature:	-20°C ÷ 60°C
Storage humidity:	<80%RH
Pollution degree:	2

Mechanical characteristics:

Dimensions:	(81.5 x 70 x 83) mm
Weight:	120g

ENGLISH

43

DEUTSCH

TECHNISCHE SPEZIFIKATIONEN

TRMS-SPANNUNG
TRMS-Spannung – Frequenz 42Hz bis 69Hz ± 5%
Bereich (V) | Auflösung (V) | Genauigkeit
0÷440 | 1 | ±(1% + 1dgt)
Überlastschutz bis 440V
CAT III 300V
FREQUENZ
Bereich (Hz) | Auflösung (Hz) | Genauigkeit
42÷69 | 0,1 | ±(2% + 1dgt)
SPANNUNGSOBERSCHWINGUNGEN und THD%
1. bis 50. Ordnung
Bereich (V) | Auflösung (V) | Genauigkeit
0,8÷440 | 0,1 | ±(3% + 5dgt)
Oberschwingungen mit einer Amplitude unter 0.8V werden auf null gesetzt. THD% wird gemäß der im Originaldokument angegebenen Formel berechnet.
STECKDOSENTEST FÜR VERDRAHTUNG
L-PE-Spannung 190V÷269V – Frequenz 50Hz ± 5%
NO PE: Verwendung bis zur Fehlerbehebung gesperrt
Vc>50V: Verwendung bis zur Fehlerbehebung gesperrt
LN vertauscht: Alle Prüfungen ohne Umstecken möglich
NO NEUTRAL: Verwendung bis zur Fehlerbehebung gesperrt
L-PE vertauscht: Verwendung bis zur Fehlerbehebung gesperrt

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

ENGLISH

TECHNICAL SPECIFICATIONS

TRMS VOLTAGE
TRMS voltage - Frequency 42Hz to 69Hz ± 5%

Range (V)	Resolution (V)	Accuracy
0÷440	1	±(1% + 1dgt)

Overload protections up to 440V
CAT III 300V

FREQUENCY

Range (Hz)	Resolution (Hz)	Accuracy
42÷69	0,1	±(2% + 1dgt)

VOLTAGE HARMONICS and THD%
1 to 50th

Range (V)	Resolution (V)	Accuracy
0.8÷440	0,1	±(3% + 5dgt)

Harmonics with intensity less than 0.8V will be reset to zero
THD% is calculated as

Socket Test for Wiring
L-PE voltage from 190V÷269V - Frequency 50Hz ± 5%

ERROR	Resolution (V)
NO PE	Lockout Use until problem resolution
Vc>50V	Lockout Use until problem resolution
LN inverted	All Tests can be performed without reversing
NO NEUTRAL	Lockout Use until the problem is resolved
L-PE inverted	Lockout Use until the problem is resolved

44

DEUTSCH

TECHNISCHE SPEZIFIKATIONEN

RCD-AUSLÖSEZEIT
L-PE-Spannung 190V÷269V – Frequenz 50Hz ± 5% – IEC/EN61557-6
Bereich (ms) | Auflösung (ms) | Genauigkeit
0÷400 Allgemein | 0,1 | ±(1ms + 2dgt)
0÷500 Selektiv | 0,1 | ±(1ms + 2dgt)
RCD-Typ AC, A und F
IΔn 30mA, 100mA, 300mA, 500mA, 650mA und 1A
Maximale Erzeugungszeit: 400ms für ALLGEMEINE RCDs und 500ms für SELEKTIVE RCDs; 1s für die Prüfung X1/2.
RCD-RAMPE
L-PE-Spannung 190V÷269V – Frequenz 50Hz ± 5% – IEC/EN61557-6
Bereich (mA) | Auflösung (mA) | Genauigkeit
0÷30 (Typ AC) | 0,1 | ±(2mA + 2dgt)
0÷42 (Typ A, F) | 0,1 | ±(2mA + 2dgt)
RCD-Typ AC, A und F; IΔn nur 30mA; maximale Erzeugungszeit 5s für ALLGEMEINE RCDs.
RCD-AUTO
L-PE-Spannung 190V÷269V – Frequenz 50Hz ± 5% – IEC/EN61557-6
IΔn (mA) | 1/2 IΔn (mA) | 5 IΔn (mA)
AC/A/F: 30/42/42 | 15/10/10 | 150/212/212
AC/A/F: 100/141/141 | 50/33/33 | 500/707/707
AC/A/F: 300/424/424 | 150/100/100 | -/-/-
AC/A/F: 500/707/707 | 250/166/166 | -/-/-
AC/A/F: 650/919/919 | 325/216/216 | -/-/-
AC/A/F: 1000/1410/1410 | 500/333/333 | -/-/-
Maximale Erzeugungszeit: 400ms für ALLGEMEINE RCDs und 500ms für SELEKTIVE RCDs. Das Zeichen - bedeutet, dass die Messung nicht verfügbar ist. Alle erzeugten Stromwerte umfassen die Polaritätsprüfung bei 0° und 180°.

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

TECHNICAL SPECIFICATIONS

RCD TIME

L-PE voltage from 190V÷269V - Frequency 50Hz ± 5% - IEC/EN61557-6 STAN-

Range (ms)	Resolution (ms)	Accuracy
0÷400 General	0.1	±(1ms + 2dgt)
0÷500 Selective	0.1	±(1ms + 2dgt)

Type of RCD AC, A and F
IΔn 30mA, 100mA, 300mA, 500mA, 650mA and 1A
Maximum Generation Time: 400ms for GENERAL RCDs and 500ms for SELECTIVE RCDs
1s for the X1/2 test

RCD RAMP

L-PE voltage from 190V÷269V - Frequency 50Hz ± 5% - IEC/EN61557-6 standard

ENGLISH

Range (mA)	Resolution (mA)	Accuracy
0÷30 (AC Type)	0.1	±(2mA + 2dgt)
0÷42 (Type A, F)	0.1	±(2mA + 2dgt)

Type of RCD AC, A and F
IΔn only 30mA
Maximum Generation Time: 5s for GENERAL RCDs

RCD AUTO

L-PE voltage from 190V÷269V - Frequency 50Hz ± 5% - IEC/EN61557-6 standard

IΔn (mA)			1/2 IΔn (mA)			5 IΔn (mA)		
AC	A	F	AC	A	F	AC	A	F
30	42	42	15	10	10	150	212	212
100	141	141	50	33	33	500	707	707
300	424	424	150	100	100	-	-	-
500	707	707	250	166	166	-	-	-
650	919	919	325	216	216	-	-	-
1000	1410	1410	500	333	333	-	-	-

Maximum Generation Time: 400ms for GENERAL RCDs and 500ms for SELECTIVE RCDs
Sign - means that measures are not available
All current values generated include 0° and 180° polarity test

45

DEUTSCH

TECHNISCHE SPEZIFIKATIONEN

LOOP Z L-PE
L-PE-Spannung 190V÷269V – Frequenz 50Hz ± 5% – IEC/EN61557-3
Bereich (Ω) | Auflösung (Ω) | Genauigkeit
0,01÷9,99 | 0,01 | ±(5% + 8dgt)
10÷99,9 | 0,1 | ±(5% + 8dgt)
100÷999 | 1 | ±(5% + 8dgt)
LOW-Strom 7mA | | ±(8% + 12dgt)
LOOP Z L-N
L-N-Spannung 190V÷269V – Frequenz 50Hz ± 5% – IEC/EN61557-3
Bereich (Ω) | Auflösung (Ω) | Genauigkeit
0,01÷9,99 | 0,01 | ±(2% + 5dgt)
10÷99,9 | 0,1 | ±(2% + 5dgt)
100÷999 | 1 | ±(2% + 5dgt)
Überlastschutz bis 440V. Kurzschlussstrom Isc von 0.1A÷24KA; Genauigkeit bezogen auf Z LOOP. CAT III 300V.

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

ENGLISH

TECHNICAL SPECIFICATIONS

LOOP Z L-PE

L-PE voltage from 190V÷269V - Frequency 50Hz ± 5% - IEC/EN61557-3 standard

Range (Ω)	Resolution (Ω	Accuracy
0.01÷9.99	0.01	±(5% + 8dgt)
10÷99.9	0.1	±(5% + 8dgt)
100÷999	1	±(5% + 8dgt)
LOW current of 7mA		±(8% + 12dgt)

LOOP Z L-N

Voltage L-N from 190V÷269V - Frequency 50Hz ± 5% - IEC/EN61557-3 standard

Range (Ω)	Resolution (Ω	Accuracy
0.01÷9.99	0.01	±(2% + 5dgt)
10÷99.9	0.1	±(2% + 5dgt)
100÷999	1	±(2% + 5dgt)

Overload protections up to 440V
Short Circuit Current Isc from 0.1A÷24KA Accuracy referred to Z LOOP.
CAT III 300V

46

DEUTSCH

DEUTSCH

Verwenden Sie ein feuchtes Tuch und etwas Reinigungsmittel, um das Gehäuse des Geräts zu reinigen.
Verwenden Sie keine Scheuermittel oder chemische Lösungsmittel.
Wartung
Das Gerät muss als Elektronikschrott entsorgt werden.

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

WARRANTY

This instrument is warranted against all defects in material and workmanship,in accordance with the general conditions of sale. During the warranty period, defective parts may be replaced, but the manufacturer reserves the right to repair or replace the product. If the instrument is to be returned to the after - sale service or to a dealer, transportation at the expense of the Customer. Shipping must, in all cases, be agreed upon in advance. Attached to the shipment must always be an explanatory note about the reasons for sending the instrument. Use only the original packaging for shipping. Any damage caused by the use of non-original packaging will be charged to the Customer. The manufacturer disclaims any liability for damage caused to persons or objects.

Warranty does not apply in the following cases:

- Repair and/or replacement of accessories (not covered by warranty).
- Repairs that are necessary due to incorrect use of the instrument or its use with incompatible equipment.
- Repairs that necessary due to improper packaging.
- Repairs that are necessary due to work performed by unauthorized personnel.
- Modifications made to the instrument without the manufacturer's authorization.
- Use not covered in the instrument specifications or user's manual.
- The contents of this manual may not be reproduced in any form without the permission of the manufacturer.
- Our products are patented and trademarks registered. The manufacturer reserves the right to make changes in specifications and prices if this is due to technological improvements.

ENGLISH

Maintenance

Use a damp cloth and a small amount of detergent to clean the instrument shell.

Do not use abrasive or chemical solvents.

Disposal

The 'instrument should be recycled as electronic waste

SERVICE

If the instrument is not working properly, check the condition of the sockets and the 'casing before contacting the Service Department. If the instrument continues to malfunction, check whether the operating procedure is in accordance with this manual.
If the instrument is to be returned to after -sales service or to a dealer, transportation is the responsibility of the Customer.
Shipping must, in any case, be agreed upon in advance.
Attached to the shipment must always be an explanatory note about the reasons for sending the instrument.
Use only the original packaging for shipping; any damage caused by the use of non-original packaging will be charged to the Customer.
Repairs must be carried out only by UNIKS Srl.

47

DEUTSCH

UNIKS S.r.l.

Via Vittori 57, 48018 Faenza (RA) – Italia
Telefon +39 0546 623002
Fax +39 0546 6236691
USt-IdNr. 02627000397
REA: RA - 218481
E-Mail info@uniks.it
www.uniks.it

Visuelle Referenz der offiziellen Originalseite · Werte, Anzeigen und Schaltbilder unverändert

Uniks Srl
Via Vittori 57, 48018 Faenza (RA) – Italia
Phone +39 0546 623002
Fax +39 0546 6236691
P.IVA 02627000397
REA: RA - 218481
mail info@uniks.it

www.uniks.it

UNIKS

ES

RAPID PRO LIMITED EDITION

Manual de uso

Español

ESPAÑOL

MANUAL DE USO

Rapid Pro Limited Edition

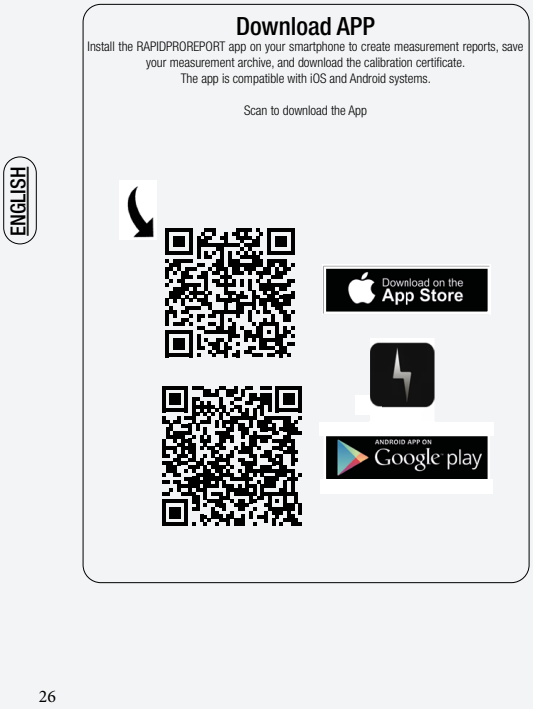
Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

ESPAÑOL

DESCARGAR LA APP

Instala la app RAPIDPROREPORT en tu smartphone para crear informes de medida, guardar el archivo de mediciones y descargar el certificado de calibración.
La app es compatible con sistemas iOS y Android.
Escanea para descargar la app.

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios



ESPAÑOL

ÍNDICE

INTRODUCCIÓN — 28
DESCRIPCIÓN GENERAL — 29
DESCRIPCIÓN DEL PRODUCTO — 30
CONEXIONES — 31
MEDIDA DE TENSIÓN Y PRUEBA DE TOMA — 32
ERRORES DE CABLEADO — 33
TIEMPO RCD — 34
RAMPA RCD — 35
RCD AUTO — 35
LOOP — 36
LOOP Z L-PE — 37
LOOP Z L-N — 38
ARMÓNICOS DE TENSIÓN — 39
MEMORIA MEM / INFORME — 39
APP RAPIDPROREPORT — 40
PRUEBA EVSE — 42
DATOS TÉCNICOS — 43
ESPECIFICACIONES TÉCNICAS — 44
GARANTÍA — 47
ASISTENCIA — 47

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

INDEX

Page
INTRODUCTION....28
GENERAL DESCRIPTION....29
PRODUCT DESCRIPTION....30
CONNECTIONS....31
VOLTAGE MEASUREMENT AND SOCKET TEST....32
WIRING ERRORS....33
RCD TIME....34
RCD RAMP....35
RCD AUTO....35
LOOP....36
LOOP Z LPE (non-trip earth loop impedance)....37
LOOP Z LN (Line Impedance)....38
VOLTAGE HARMONICS....39
MEM Memory / REPORT....39
RAPIDPROREPORT APP....40
EVSE TEST....42
TECHNICAL DATA....43
TECHNICAL SPECIFICATIONS....44
WARRANTY....47
ASSISTANCE....47

ENGLISH

27

ESPAÑOL

INTRODUCCIÓN

Enhorabuena por la compra de RAPID PRO Limited Edition, el comprobador multifunción de bolsillo para la verificación de instalaciones eléctricas, fabricado en solo 500 ejemplares numerados MADE IN ITALY.
RAPID PRO LE representa una nueva frontera entre los instrumentos de verificación de instalaciones eléctricas. Gracias a la patente UNIKS Digitaloop™, incorpora medidas tanto en entornos residenciales como industriales. Además de utilizarse como multímetro TRMS y para la prueba de tomas, permite realizar pruebas de seguridad eléctrica (RCD, LOOP L-PE y L-N) conforme a IEC61557-3 e IEC61557-6.
Dispone de una pantalla TFT de 1.77", memoria interna y un SUPERCAP que lo alimenta incluso cuando se desconecta de la red.
PRECAUCIONES Y MEDIDAS DE SEGURIDAD
Atención: sigue las instrucciones del manual. Un uso inadecuado puede dañar el instrumento o crear situaciones peligrosas para el operador.
Peligro de alta tensión: riesgo de descarga eléctrica.
El instrumento se ha diseñado conforme a IEC/EN61010-1 para instrumentos electrónicos de medida. Para evitar daños, realiza los procedimientos descritos en este manual.
• No realices medidas en ambientes húmedos.
• No realices medidas en presencia de gases o materiales explosivos o combustibles ni en ambientes polvorientos.
• Evita el contacto con el circuito bajo prueba si no estás realizando medidas. Evita tocar partes metálicas expuestas y terminales de medida no utilizados.
• No realices ninguna medida si observas una anomalía en el instrumento, como una deformación.
La tensión máxima de entrada AC es 440V. No midas tensiones que superen los límites indicados en este manual y en el instrumento. Superar esos límites puede causar una descarga eléctrica y dañar el instrumento.
RESET: mantén pulsados simultáneamente los dos botones FUNC durante dos segundos y espera la señal acústica. El procedimiento restablece Rapid Pro MAX a los ajustes de fábrica y borra toda la memoria. Úsalo solo en caso de funcionamiento anómalo.

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

ENGLISH

INTRODUCTION

Congratulations on your purchase of the RAPID PRO Limited Edition the pocket-sized multifunction for electrical installations verification produced in only 500 numbered examples **MADE IN ITALY.**
The RAPID PRO LE represents a new frontier in verification instruments for electrical installations, and thanks to the UNIKS Digitaloop™ patent, it has evolved to include measurements in both **civil and industrial** settings. In addition to being used as a multimeter in TRMS and Receptacle Test, it enables electrical safety tests (RCD, LOOP L-Pe - L-N) in accordance with the STANDARDS IEC61557-3 and IEC61557-6.
It is equipped with a 1.77" TFT Display. , of internal memory and a SUPERCAP to power it even when disconnected from the mains.

PRECAUTIONS AND SAFETY MEASURES

⚠ Caution: Follow the instructions in the manual; improper use could cause damage to the instrument or create dangerous situations for the operator.

⚠ High Voltage Hazard: electrical shock hazards

The instrument is designed in accordance with IEC/EN61010-1, relating to electronic measuring instruments. To avoid damaging the instrument, carry out the procedures described in this manual.

- Do not make measurements in humid environments.
- Do not make measurements in the presence of explosive, combustible gases or materials, or in dusty environments.
- Avoid contact with the circuit under test if you are not making measurements. Avoid contact with exposed metal parts, unused measurement terminals, etc.
- Do not make any measurement if any abnormality is found in the instrument such as, deformation,

⚠ **The maximum input AC voltage is 440V . Do not measure voltages that exceed the limits given in this manual and printed on the instrument. Exceeding the voltage limits could cause electrical shock to the user and damage to the instrument.**

⚠ **Product RESET procedure: Press and hold both buttons FUNC ▶ simultaneously for two seconds and wait until you hear a beep. This procedure will reset the Rapid Pro MAX to its factory settings and erase all memory. Use this procedure only in the event of a malfunction.**

28

ESPAÑOL

DESCRIPCIÓN GENERAL

RAPID PRO LE realiza las medidas siguientes:
1. Tensión L-N en TRMS o tensión trifásica con accesorio
2. Frecuencia de la tensión de red
3. Prueba RCD tipo A, AC y F hasta 1A
4. Prueba RCD general y selectiva
5. Corriente de prueba IΔn 30mA, 100mA, 300mA, 500mA, 650mA y 1A
6. Modos de prueba RCD AUTO
7. Prueba de rampa RCD A, AC y F solo a 30mA
8. Medida de la tensión de contacto Uc
9. Z LOOP L-PE, impedancia de bucle de tierra sin disparo
10. Corriente de defecto a tierra prospectiva IPEFC
11. Impedancia de línea Z L-N o impedancia trifásica Z L-L
12. Corriente de cortocircuito prospectiva ISC
13. Corriente de cortocircuito presunta Isc
14. Armónicos de tensión hasta el orden 50
15. THD% de tensión
16. Frecuencia fundamental y todos los armónicos
17. Prueba de toma (cableado de la toma)

Cada función se selecciona con un botón específico. Las teclas de función permiten cambiar los parámetros y recorrer los armónicos.
La función AUTO POWER utiliza un SUPERCAP interno para mantener RAPID PRO LE encendido incluso cuando se desconecta de la red. Con el SUPERCAP totalmente descargado, la carga puede tardar unos 45 segundos. Así se puede leer el tiempo de disparo del RCD y consultar la pantalla tras desconectar el instrumento.
Todos los resultados se indican como OK o NO OK mediante una barra VERDE o ROJA en el centro de la pantalla. La prueba de toma detecta problemas habituales como NO PE y FASE/NEUTRO invertidos. El error se muestra en VOLT y continúa indicado durante las medidas RCD y LOOP; las pruebas pueden realizarse sin girar el instrumento en la toma.
AUTO POWER está desactivado en LOOP L-PE y LOOP Line L-N.

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

GENERAL DESCRIPTION

The RAPID PRO LE performs the following measurements:

1. L-N Voltage in TRMS or Three Phase Voltage with Accessory
2. Frequency of Line Voltage
3. RCD Testing (RCD) A, AC and F up to 1A
4. General and Selective RCD Testing
5. Test Current IΔn 30mA, 100mA, 300mA, 500mA, 650mA and 1A
6. RCD AUTO test modes.
7. RCD RAMP testing A, AC and F only 30mA
8. Measurement of Contact Voltage Uc
9. Z LOOP L-PE No-trip earth loop impedance test
10. IPEFC Prospective Earth Fault Current.
11. Z LINE Impedance Z L-N or Z L-L three-phase impedance
12. ISC prospective short-circuit current
13. Assumed Short Circuit Current Isc
14. Voltage harmonics up to the 50th
15. Voltage THD% (Line Harmonic Distortion)
16. Fundamental frequency and all harmonics
17. Socket Test (socket wiring)

ENGLISH

Each of these functions can be selected by a special button. There are also function keys, to change measurement parameters or scroll through harmonics. The instrument is also equipped with an **AUTO POWER** function via an internal **SUPERCAP** that allows the RAPID PRO LE to be kept on even when it is not connected to the grid.
Normally charging can take about 45 seconds when the SUPER CAP is fully charged.
This function makes it possible to read the value of the differential trip time after the trip or to conveniently read the values on the display by disconnecting the instrument from the power supply.
All measurement outcomes are indicated with OK and NO OK result through a **GREEN** or **RED** bar in the center of the Display.
The Socket Test function detects common wiring problems such as missing connection to **EARTH (NO PE)** or reversed PHASE and NEUTRAL.
The 'inverted PHASE and NEUTRAL error will be indicated in the VOLT Display, and the RAPID PRO LE will allow you to make all measurements even without inverting the instrument in the socket.
It will also continue to be indicated in RCD and LOOP measurements by the symbol

The Auto Power function is disabled in the LOOP L-Pe and LOOP Line L-N functions.

29

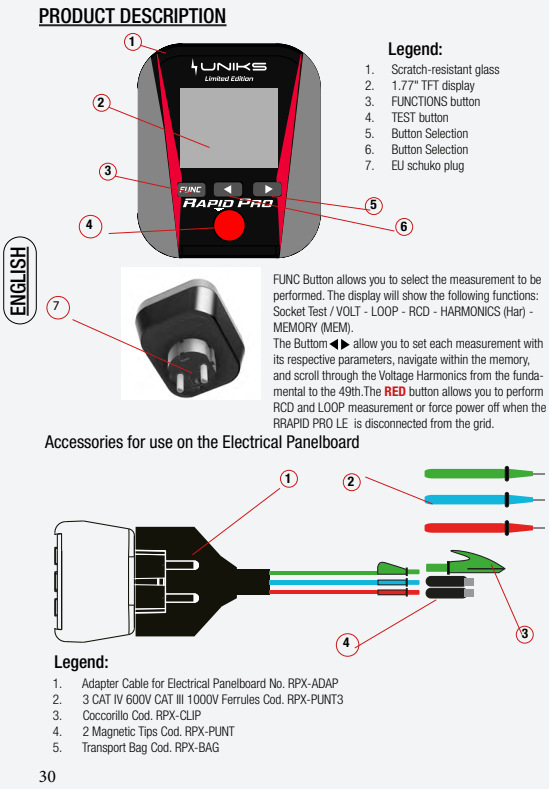
ESPAÑOL

DESCRIPCIÓN DEL PRODUCTO

Leyenda:
1. Cristal resistente a los arañazos
2. Pantalla TFT de 1.77"
3. Botón FUNCTIONS
4. Botón TEST
5. Botón de selección
6. Botón de selección
7. Clavija Schuko UE

El botón FUNC permite seleccionar la medida que se va a realizar. La pantalla muestra: prueba de toma / VOLT – LOOP – RCD – HARMONICS (Har) – MEMORY (MEM). Los botones de selección permiten configurar los parámetros de cada medida, navegar por la memoria y recorrer los armónicos de tensión desde la fundamental hasta el orden 49. El botón ROJO ejecuta las medidas RCD y LOOP o fuerza el apagado cuando RAPID PRO LE está desconectado de la red.
Accesorios para uso en el cuadro eléctrico:
1. Cable adaptador para cuadro eléctrico n.º RPX-ADAP
2. 3 puntas CAT IV 600V / CAT III 1000V, cód. RPX-PUNT3
3. Pinza cocodrilo, cód. RPX-CLIP
4. 2 puntas magnéticas, cód. RPX-PUNT
5. Bolsa de transporte, cód. RPX-BAG

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

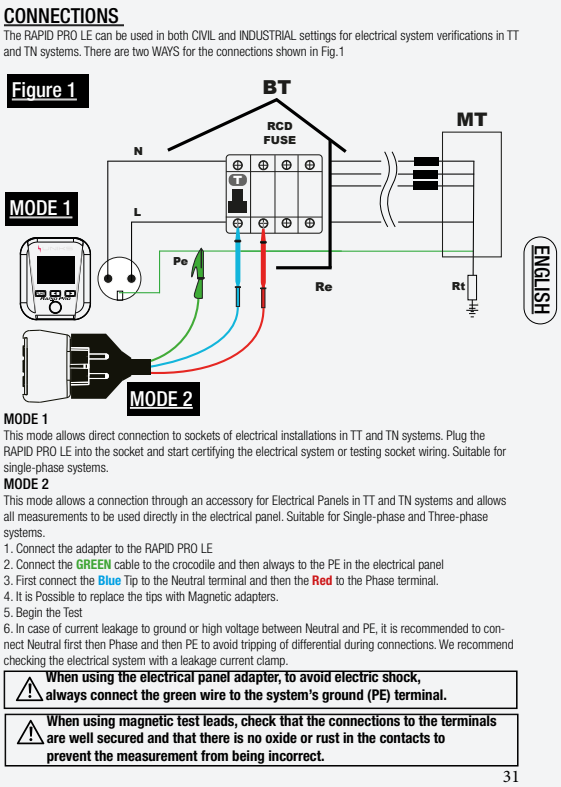


ESPAÑOL

CONEXIONES

RAPID PRO LE puede utilizarse en entornos residenciales e industriales para verificar instalaciones eléctricas en sistemas TT y TN. La Fig. 1 muestra dos modos de conexión.
MODO 1
Conexión directa a tomas de instalaciones TT y TN. Conecta RAPID PRO LE a la toma e inicia la verificación de la instalación o del cableado. Adecuado para sistemas monofásicos.
MODO 2
Conexión mediante el accesorio para cuadros eléctricos TT y TN. Permite realizar todas las medidas directamente en el cuadro. Adecuado para sistemas monofásicos y trifásicos.
1. Conecta el adaptador a RAPID PRO LE.
2. Conecta el cable VERDE a la pinza cocodrilo y después siempre al PE del cuadro.
3. Conecta primero la punta azul al neutro y después la roja a la fase.
4. Las puntas pueden sustituirse por adaptadores magnéticos.
5. Inicia la prueba.
6. Si existe fuga a tierra o alta tensión entre neutro y PE, conecta primero neutro, después fase y por último PE para evitar el disparo del RCD durante la conexión. Se recomienda comprobar la instalación con una pinza de fugas.
Atención: con el adaptador de cuadro, conecta siempre el cable verde al terminal de protección PE. Con puntas magnéticas, comprueba que la sujeción sea firme y que los contactos no presenten óxido para evitar medidas incorrectas.

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios



ESPAÑOL

MEDIDA DE TENSIÓN Y PRUEBA DE TOMA

Esta función mide la tensión TRMS entre fase y neutro o entre dos fases en sistemas trifásicos y comprueba simultáneamente el cableado de la toma.

Funcionamiento

Conecta RAPID PRO LE a la toma o al cuadro con el adaptador (Fig. 1). Pulsa FUNC para seleccionar VOLT. La tensión solo aparece si la prueba de toma es correcta y la tensión de contacto es <50V. La barra VERDE indica «Socket OK». Con el botón de selección se muestra la frecuencia; al pulsarlo de nuevo aparecen el número de serie y la versión de firmware. El otro botón regresa.

Tensión TRMS

Muestra la tensión TRMS entre fase y neutro en un sistema TT o TN. La barra VERDE confirma que el cableado de la toma es correcto.

Tensión TRMS trifásica

Muestra la tensión TRMS entre dos fases en un sistema TT o TN trifásico y la frecuencia de la señal.

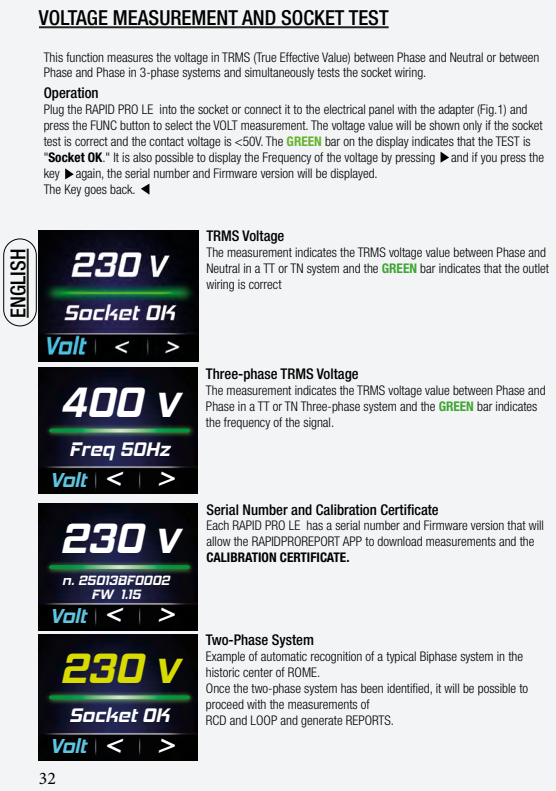
Número de serie y certificado de calibración

Cada RAPID PRO LE dispone de número de serie y versión de firmware, utilizados por RAPIDPROREPORT para descargar las medidas y el CERTIFICADO DE CALIBRACIÓN.

Sistema bifásico

Ejemplo de reconocimiento automático de un sistema bifásico típico del centro histórico de ROMA. Una vez identificado, se pueden realizar medidas RCD y LOOP y generar INFORMES.

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios



VOLTAGE MEASUREMENT AND SOCKET TEST

This function measures the voltage in TRMS (True Effective Value) between Phase and Neutral or between Phase and Phase in 3-phase systems and simultaneously tests the socket wiring.

Operation

Plug the RAPID PRO LE into the socket or connect it to the electrical panel with the adapter (Fig.1) and press the FUNC button to select the VOLT measurement. The voltage value will be shown only if the socket test is correct and the contact voltage is <50V. The **GREEN** bar on the display indicates that the TEST is "**Socket OK**." It is also possible to display the Frequency of the voltage by pressing ▶ and if you press the key ▶ again, the serial number and Firmware version will be displayed.
The Key goes back. ◀

ENGLISH

TRMS Voltage
The measurement indicates the TRMS voltage value between Phase and Neutral in a TT or TN system and the **GREEN** bar indicates that the outlet wiring is correct

Three-phase TRMS Voltage
The measurement indicates the TRMS voltage value between Phase and Phase in a TT or TN Three-phase system and the **GREEN** bar indicates the frequency of the signal.

Serial Number and Calibration Certificate
Each RAPID PRO LE has a serial number and Firmware version that will allow the RAPIDPROREPORT APP to download measurements and the **CALIBRATION CERTIFICATE.**

Two-Phase System
Example of automatic recognition of a typical Biphase system in the historic center of ROME.
Once the two-phase system has been identified, it will be possible to proceed with the measurements of
RCD and LOOP and generate REPORTS.

32

ESPAÑOL

ERRORES DE CABLEADO

Conecta RAPID PRO LE a la toma y comprueba los mensajes de error indicados por la barra ROJA. Con el accesorio de cuadro pueden aparecer brevemente errores si los conductores se conectan de forma incorrecta o no simultánea.
ERROR NO PE
Falta la conexión de tierra. Es el error más habitual y más peligroso para la seguridad eléctrica. Solución: desmonta la toma y comprueba las conexiones o revisa todo el sistema de tierra.
FASE Y NEUTRO INVERTIDOS
La posición de la fase está invertida respecto al neutro. Durante las medidas LOOP y RCD aparece el símbolo correspondiente. Solución: desmonta la toma y comprueba las conexiones.
TENSIÓN DE CONTACTO >50V
Vc>50V impide continuar la prueba. La causa es una diferencia de potencial entre partes accesibles simultáneamente a la que podría quedar sometido el cuerpo en caso de fallo de aislamiento. Solución: comprueba la presencia de corrientes de fuga.
NO NEUTRAL O L-PE INVERTIDOS
El neutro no está conectado o fase y PE están invertidos. Solución: si es necesario, desmonta la toma y comprueba las conexiones.
Con fase y neutro invertidos no es necesario girar RAPID PRO LE; pueden continuar las medidas RCD, LOOP y de armónicos. Con el accesorio de cuadro pueden aparecer avisos mientras los conductores todavía no se hayan conectado al mismo tiempo; por ejemplo, NO PE hasta conectar PE.

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

WIRING ERRORS

Plug the RAPID PRO LE into the socket and check the wiring error messages indicated by the **RED** bar. During operation with switchboard accessory, errors may appear for a short time due to connections through incorrect or non-simultaneous leads.

NO PE ERROR
This error indicates that the Ground connection is missing. It represents the most common and most dangerous error for electrical safety.
Solution: Disassemble the Receptacle and check the connections or Check the entire Earth system and all its connections.

INVERTED PHASE and NEUTRAL ERROR
This error indicates that the position of the Phase is reversed with respect to the Neutral. Often this type of Error is not considered dangerous.
During LOOP and RCD measurements the symbol will be displayed
Solution: Disassemble the Receptacle and check the connections.

CONTACT VOLTAGE >50V
Error Vc>50V will not allow testing to continue due to a potential difference that is established between two simultaneously accessible such as a live metal ground and the ground to which the subjected to the human body in the event of an insulation fault.
Solution: Check for the presence of leakage currents.

NO NEUTRAL ERROR or L-PE INVERTED
This error indicates that the neutral is not connected or the Phase and PE are Reversed
Solution: If necessary disassemble the Receptacle and check the connections.

ENGLISH

The Phase and Neutral Reversed error does not force you to turn the connection of the RAPID PRO LE and you will be able to continue 'use in the RCD, LOOP and Harmonics

When connecting via switchboard accessory the RAPID PRO LE can indicate wiring errors due to the connections not being made at the same time.
Ex. You connect the Phase then the Neutral to the switchboard then for a short time the Display will indicate NO PE error until the PE connection is made.

33

ESPAÑOL

PRUEBA DE TIEMPO RCD

Esta función comprueba dispositivos RCD conforme a IEC/EN 61557-6, EN61008 y EN61009. La prueba utiliza IΔn 30mA, 100mA, 300mA, 500mA, 650mA y 1A para RCD generales y selectivos de tipo A, AC y F.
Conecta RAPID PRO LE a la toma o al cuadro con el adaptador (Fig. 1). Pulsa FUNC para seleccionar RCD TIME. Elige el tipo de RCD y la corriente IΔn con los botones correspondientes e inicia la prueba con el botón ROJO.
Antes de generar la corriente, el Pre-Test mide la tensión de contacto. Si es <50V se genera la corriente; en caso contrario aparece Vc>50V.
Resultados del tiempo de disparo:
1. t < 300ms | 30mA-100mA-300mA-500mA 1A | OK, barra VERDE
2. t > 400ms | 30mA-100mA-300mA-500mA 1A | NO OK, barra ROJA
3. t entre 300ms y 400ms | 30mA-100mA-300mA-500mA 1A | NO OK, barra ROJA
La pantalla muestra el tiempo de disparo en ms y la tensión de contacto Vc. Con >50V la prueba no se ejecuta. Un tiempo superior al valor de referencia se indica como NO OK con barra ROJA.
Selectivo
Mantén pulsado el botón de selección durante 1 segundo hasta que aparezca el recuadro blanco S. Ajusta el tipo A, AC o F y la corriente; pulsa el botón ROJO. Un temporizador de 30 segundos finaliza antes de iniciar la prueba del RCD selectivo.
Nota: durante la prueba, la corriente de Pre-Test puede disparar el RCD si existe corriente de fuga.

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

RCD TIME TESTING

This function performs the test according to IEC/EN 61557-6, EN61008 and EN61009 and RCD devices. The test is performed with a test current IΔn of 30mA, 100mA ,300mA, 500mA , 650mA and 1A for RCD devices of TYPE A , AC and F General and Selective.

Plug the RAPID PRO LE into the socket or connect it to the switchboard with the adapter (Fig.1) and press the FUNC button to select RCD TIME measurement. Press the button ◀ to select the RCD type and the button ▶ to select the test current IΔn.
Perform the TEST by pressing the **RED** key.
Before generating the selected test current, the RAPID PRO LE performs a measurement called Pre-Test to check the contact voltage, and then if the contact voltage is <50V the test current will be generated otherwise the Error Vc>50V will be indicated (See Page 9).

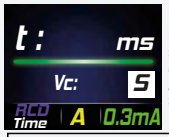
ENGLISH

Table of Outcomes related to tripping time

	Time	Current IΔn	Result
1.	t < 300ms	30mA-100mA-300mA-500mA 1A	OK with **GREEN** bar
2.	t > 400ms	30mA-100mA-300mA-500mA 1A	NO OK with **RED** bar
3.	t between 300ms and 400ms	30mA-100mA-300mA-500mA 1A	NO OK with **RED** bar

The display indicates the RCD trip TIME in ms and the **GREEN** bar indicates the OK outcome .
Vc indicates the contact voltage.
If the detected contact voltage is >50V, the differential test will not be performed and the display will indicate the **RED** bar

The display indicates the RCD trip TIME beyond the reference NORM and the **RED** bar indicates the 'outcome is NO OK.
Vc indicates the contact voltage.



Selective

Press and hold the button ◀ for 1 second and the white box marked **S (selective)** will appear. Set the RCD type A, AC or F and the test current then press the RED button to start the test.
A 30-second timer will appear in the white box, which will start the SELECTIVE RCD device test after it is completed.

⚠ **During the RCD test, the generation of the Pre-Test current may trip the RCD device if a leakage current is present.**

34

ESPAÑOL

PRUEBA DE RAMPA RCD

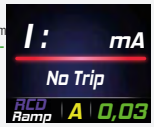
Conecta RAPID PRO LE a la toma o al cuadro con el adaptador (Fig. 1) y pulsa FUNC para seleccionar RCD RAMP. Utiliza el botón de selección para elegir el tipo de RCD.
La prueba solo puede realizarse con IΔn 30mA para los tipos A, AC y F.
Inicia la prueba pulsando el botón ROJO. La pantalla muestra el aumento progresivo de la corriente. Normalmente, un RCD debe disparar con una corriente comprendida entre IΔn/2 e IΔn.
Corriente de disparo 28mA: resultado positivo, barra VERDE.
Corriente de disparo >IΔn: resultado negativo, barra ROJA.
SECUENCIA RCD AUTO
Conecta RAPID PRO LE a la toma o al cuadro con el adaptador y pulsa FUNC para seleccionar RCD AUTO. Selecciona el tipo de RCD y la corriente de prueba IΔn con los botones correspondientes. Inicia la prueba con el botón ROJO. Cada vez que se rearma el RCD, el instrumento realiza la prueba siguiente en cuanto detecta tensión de red, sin volver a pulsar el botón ROJO.
La medida se realiza en 6 o 4 pasos de disparo:
PASO 1 | IΔn x1 0° | OK si <300 ms | todos los valores de IΔn
PASO 2 | IΔn x1 180° | OK si <300 ms | todos los valores de IΔn
PASO 3 | IΔn x5 0° | OK si <40 ms | solo 30mA y 100mA
PASO 4 | IΔn x5 180° | OK si <40 ms | solo 30mA y 100mA
PASO 5 | IΔn x1/2 0° | OK si >1000 ms | todos los valores de IΔn
PASO 6 | IΔn x1/2 180° | OK si >1000 ms | todos los valores de IΔn
Ejemplo con IΔn 30mA: la prueba x5 está disponible según la tabla. Los resultados negativos se muestran en ROJO y los positivos en VERDE. NOT indica que la prueba x1/2 no se ha superado. Al activar el RCD selectivo aparece el recuadro blanco.
Ejemplo con IΔn 1A: la prueba x5 no está disponible según la tabla.

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

RCD RAMP TESTING

Plug the RAPID PRO LE into the socket or connect it to the switchboard with the adapter (Fig. 1) and press the FUNC key to select RCD RAMP measurement. Press the button ▶ to select the RCD type.
The Test can be performed only with the current IΔn of 30mA type A, AC and F.
Perform the TEST by pressing the **RED** key, the advance of the current increment will be shown on the display. Normally a RCD device should operate with a current between IΔn/2 and IΔn.

Tripping current 28mA Positive outcome indicated by the **GREEN bar**



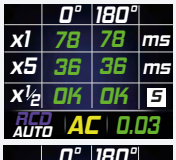
Tripping Current >IΔn Negative outcome indicated by the **RED bar**

ENGLISH

RCD AUTO SEQUENCE

Plug the RAPID PRO LE into the socket or connect it to the switchboard with the adapter (Fig...) and press the FUNC button to select RCD AUTO measurement. Press the button ◀ to select the RCD type and the button to select the test current IΔn. Perform the TEST by pressing the **RED** key, each time the RCD device is reset, the instrument will perform the next test as soon as it measures line voltage without pressing the **RED** key.
The measurement is performed with 6 or 4 STEP of differential tripping:

MEASUREMENT	GENERATION IΔn	OUTCOMES	STEP ENABLED
STEP 1	IΔn x1 0°	OK if <300 ms	All values of IΔn
STEP 2	IΔn x1 180°	OK if <300 ms	All values of IΔn
STEP 3	IΔn x5 0°	OK if <40 ms	**30mA and 100mA only**
STEP 4	IΔn x5 180°	OK if <40 ms	**30mA and 100mA only**
STEP 5	IΔn x1/2 0°	OK if >1000 ms	All values of IΔn
STEP 6	IΔn x1/2 180°	OK if >1000 ms	All values of IΔn



Example of the RCD AUTO function with test current IΔn of 30mA.
The x5 test is available as shown in the table above.
The 'Negative outcome of the measurement STEP is indicated by the **RED** valuewhile the **GREEN** values have a positive outcome
NOT indicates that the test at x1/2 did not pass.
Press the button ▶ to enable the Selective RCD function, and the white box will appear.

Example of the RCD AUTO function with IΔn test current of 1A.
The x5 test will not be available as shown in the table above.
The 'Negative outcome of the measurement STEP is indicated by the **RED** valuewhile the **GREEN** values have a positive outcome
NOT indicates that the test at x1/2 did not pass.

35

ESPAÑOL

LOOP · DIGITALOOP™

RAPID PRO LE utiliza el método patentado DIGITALOOP™ para todas las medidas LOOP, incluida la impedancia de bucle de tierra sin disparo y la impedancia de línea conforme a IEC/EN 61557-3.
La primera generación Rapid Pro aplica DIGITALOOP™ a la medida L-PE con una corriente aproximada de 15mA para no disparar el RCD. El resultado es preciso e inmune a perturbaciones. Para medir entre fase y neutro, el método se ha ampliado. Normalmente, la medida L-N y la corriente de cortocircuito prospectiva requieren corrientes de decenas de amperios y componentes voluminosos y costosos. UNIKS perfeccionó DIGITALOOP™ incorporando cálculos de inteligencia artificial denominados LOOP AI. Así, RAPID PRO LE ofrece prestaciones de un multifunción dentro de un formato portátil e innovador.
Funcionamiento
Conecta RAPID PRO LE a la toma o al cuadro con el adaptador (Fig. 1) y pulsa FUNC para seleccionar LOOP. Elige LPE para la impedancia de bucle de tierra sin disparo o LN para la impedancia de línea y la corriente de cortocircuito ISC o de defecto a tierra. Selecciona AI o LOW; LOW solo está disponible con LPE.
LOW evita el disparo del RCD incluso con corrientes de fuga; la precisión es 8% ± 12 dgt. Inicia la medida solo cuando el círculo blanco de DIGITALOOP™ haya terminado la estabilización. La barra AZUL indica perturbación y duración: se acorta con poco ruido y se alarga con mucho. Pulsa el botón ROJO. El Pre-Test genera la corriente solo si Vc <50V; en caso contrario aparece Vc>50V.

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

ENGLISH

LOOP

DIGITALOOP™

TheRAPID PRO LE uses the patented DIGITALOOP™ method to perform all LOOP measurements such as No-trip earth loop impedance and line impedance according to **IEC/EN 61557-3.**
The first generation Rapid Pro uses **Digitaloop™** only for No-trip earth loop impedance by measuring the fault loop between L-PE with a current of about 15mA so as not to trip the differential device, and the result is an accurate measurement that is immune to noise, but to measure the fault loop impedance between Phase and Neutral something had to be added to this method.
Normally the measurement of impedance between Phase and Neutral and prospective short-circuit current requires that a current on the order of tens of amperes be generated making it very bulky and expensive.
UNIKS found the solution by further improving the DIGITALOOP™ algorithm by adding new artificial intelligence calculations called **LOOP AI** and thanks innovation we were able to perform the same measurement as the Multifunction products inside the portable and innovative design of the RAPID PRO LE .

Operation

Plug the RAPID PRO LE into the socket or connect it to the electrical panel with the adapter (Fig.1) and press the FUNC button to select LOOP measurement. Press the button ◀ to select **LPE** then No-trip earth loop impedance test or **LN** for the measurement of 'line impedance and ISC prospective short-circuit current or Prospective Earth Fault Current.
Press the button ▶ to choose the mode of current generation **LOW** or **AI** (LOW is present only if LPE is selected).
The **LOW** mode is very important during the No-trip earth loop impedance test because it prevents the RCD from tripping even in the presence of leakage currents but the accuracy will be 8% ± 12 dgt.
The measurement can be taken only after the white circle has finished its settling of the DIGITALOOP™ also the **BLUE** bar will contract if the noise in the line under test is small and extend if the noise is big.
Perform the TEST by pressing the **RED** button.
Before generating the selected test current, the RAPID PRO LE performs a measurement called Pre-Test to check the contact voltage and then if the contact voltage is <50V the test current will be generated otherwise the Error Vc>50V will be indicated (See Page 9).

Settling circle of the DIGITALOOP™

Indicator bar for mains noise and measurement duration after pressing the RED button

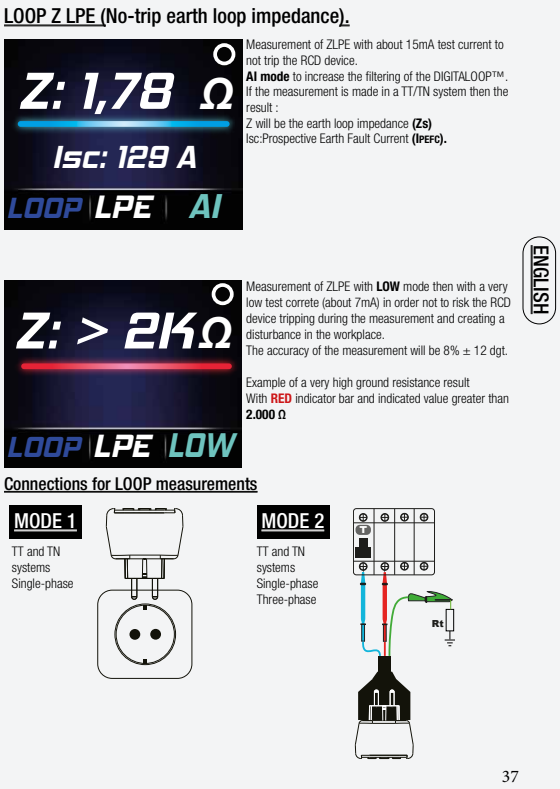
36

ESPAÑOL

LOOP Z L-PE · IMPEDANCIA DE BUCLE DE TIERRA SIN DISPARO

Medida de Z L-PE con una corriente de prueba aproximada de 15mA para no disparar el RCD. El modo AI aumenta el filtrado de DIGITALOOP™.
En sistemas TT y TN:
Z = impedancia de bucle de tierra Zs
Isc = corriente de defecto a tierra prospectiva IPEFC
MODO LOW
Medida de Z L-PE con una corriente muy baja, aproximadamente 7mA, para reducir aún más el riesgo de disparo del RCD y de interrupción del trabajo. La precisión es 8% ± 12 dgt.
Ejemplo de resistencia de tierra muy alta: barra ROJA y valor superior a 2.000 Ω.
Conexiones para medidas LOOP:
MODO 1: sistemas TT y TN monofásicos.
MODO 2: sistemas TT y TN monofásicos o trifásicos.

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

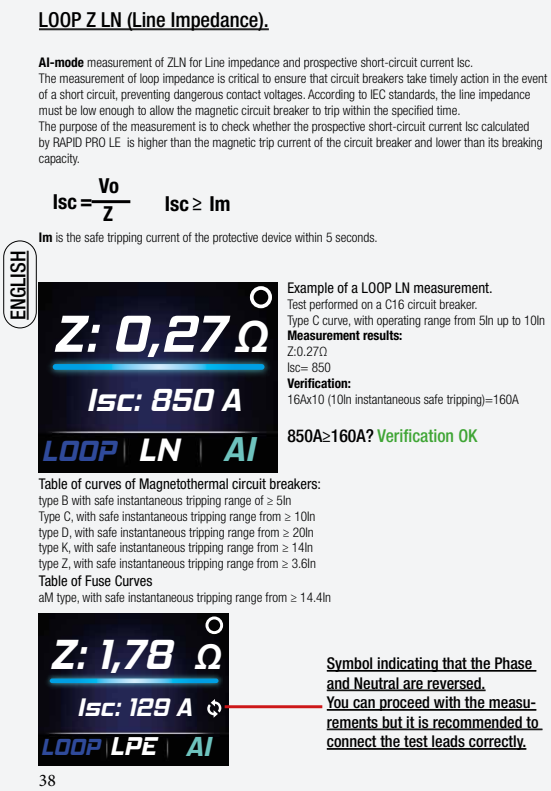


ESPAÑOL

LOOP Z L-N · IMPEDANCIA DE LÍNEA

Medida AI de Z L-N para la impedancia de línea y la corriente de cortocircuito prospectiva Isc. La impedancia debe ser suficientemente baja para que el interruptor actúe dentro del tiempo previsto en caso de cortocircuito y evite tensiones de contacto peligrosas. Se comprueba que Isc calculada por RAPID PRO LE sea superior a la corriente de disparo magnético del interruptor e inferior a su poder de corte.
Isc = Vo / Z; Isc ≥ Im. Im es la corriente de disparo seguro del dispositivo de protección dentro de 5 segundos.
Ejemplo LOOP L-N con interruptor C16:
Curva C, rango de funcionamiento de 5In a 10In
Z:0.27Ω
Isc=850A
16Ax10 (disparo instantáneo seguro 10In)=160A
850A≥160A: verificación OK
Curvas de interruptores magnetotérmicos, disparo instantáneo seguro:
Tipo B ≥ 5In
Tipo C ≥ 10In
Tipo D ≥ 20In
Tipo K ≥ 14In
Tipo Z ≥ 3.6In
Fusible aM ≥ 14.4In
El símbolo de fase y neutro invertidos permite continuar las medidas; se recomienda conectar correctamente los cables de prueba.

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios



LOOP Z LN (Line Impedance).

AI-mode measurement of ZLN for Line impedance and prospective short-circuit current Isc.
The measurement of loop impedance is critical to ensure that circuit breakers take timely action in the event of a short circuit, preventing dangerous contact voltages. According to IEC standards, the line impedance must be low enough to allow the magnetic circuit breaker to trip within the specified time.
The purpose of the measurement is to check whether the prospective short-circuit current Isc calculated by RAPID PRO LE is higher than the magnetic trip current of the circuit breaker and lower than its breaking capacity.

$$Isc = \frac{Vo}{Z} \qquad Isc \geq Im$$

Im is the safe tripping current of the protective device within 5 seconds.

ENGLISH

Example of a LOOP LN measurement.
Test performed on a C16 circuit breaker.
Type C curve, with operating range from 5In up to 10In
Measurement results:
Z:0.27Ω
Isc= 850
Verification:
16Ax10 (10In instantaneous safe tripping)=160A

850A≥160A? Verification OK

Table of curves of Magnetothermal circuit breakers:
type B with safe instantaneous tripping range of ≥ 5In
Type C, with safe instantaneous tripping range from ≥ 10In
type D, with safe instantaneous tripping range from ≥ 20In
type K, with safe instantaneous tripping range from ≥ 14In
type Z, with safe instantaneous tripping range from ≥ 3.6In
Table of Fuse Curves
aM type, with safe instantaneous tripping range from ≥ 14.4In

Symbol indicating that the Phase and Neutral are reversed.
You can proceed with the measurements but it is recommended to connect the test leads correctly.

38

ESPAÑOL

Har ARMÓNICOS DE TENSIÓN

Esta función permite analizar la calidad de la tensión de red y sus armónicos hasta el orden 49.
Modos de prueba:

- Fund muestra el armónico fundamental h1 (color ROJO), su frecuencia (~50Hz) y THD%, que indica el porcentaje de distorsión armónica total de la tensión de red (Fig. 2).
- h2...50 muestra el valor de tensión TRMS del armónico seleccionado (color ROJO), su frecuencia y el porcentaje (%) respecto a la fundamental h1 a 50Hz (Fig. 3).

Función Armónicos
Conecta RAPID PRO LE a la toma o al cuadro eléctrico con el adaptador (Fig. 1) y pulsa FUNC para seleccionar Har. Utiliza los botones de selección para avanzar hacia los armónicos de orden superior o regresar al armónico h1.
Puedes desconectar RAPID PRO LE de la alimentación y analizar cómodamente los armónicos hasta que el SUPERCAP se descargue por completo.
MEM Memoria / INFORME
Cada medida RCD y LOOP realizada se guarda automáticamente en la sección MEM. Pulsa FUNC para seleccionar MEM.
Utiliza los botones de selección para recorrer las medidas guardadas. Para borrar la memoria, pulsa simultáneamente los dos botones indicados: aparecerá DELETE MEMORY; selecciona YES.
Pueden guardarse 64 medidas consecutivas.
Al pulsar el botón ROJO se genera un QR CODE para crear el INFORME (Fig. 12). Las 64 posiciones se organizan en orden temporal. La última medida se guarda siempre en la primera CELDA libre, en orden ascendente (1...64).
CREAR INFORME
Pulsa el botón ROJO para generar el QR CODE. Enmarca el QR CODE con el smartphone mediante la app RAPIDPROREPORT.
Todas las medidas guardadas se incorporan a un INFORME que puede exportarse en PDF o CSV. Descarga RAPIDPROREPORT para iOS y Android.
MEMORIA
La columna N.º indica el número de la medida. La columna FUNC indica la medida guardada y sus ajustes. La columna Valor indica el resultado. En las medidas RCD, el resultado es VERDE si es OK y ROJO si es NO OK.

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

Har VOLTAGE HARMONICS

This function allows the quality of the mains voltage to be analyzed and its voltage harmonics to the 49th.

Test Mode:

- **Fund** Shows the Fundamental Harmonic h1 (color **RED**), its frequency (~50Hz) and THD% indicating the percentage of total harmonic distortion of the mains voltage (Fig. 2).
- **h2....50** Shows the TRMS voltage value of the selected harmonic (**RED** color), its Frequency and percentage (%) compared to the h1 Fundamental at 50Hz (Fig. 3)

Harmonics Function

Plug the RAPID PRO LE into the socket or connect it to the electrical panel with the adapter (Fig 1) and FUNC key to select Har measurement. Press the button ▶ to select higher order harmonics or press the button ▶ to return to 'h1 harmonic.
You will be able to disconnect the RAPID PRO LE from the 'power supply and conveniently analyze the harmonics until the SUPERCAP is fully discharged.

Fig.2

Fig.3

ENGLISH

MEM Memory / REPORT

Each performed measurement of RCD and LOOP will be automatically stored in the MEM section. Press the FUNC key to select MEM.
Press the or buttons ◀ ▶ to scroll through the stored measurements or press the and buttons ◀ ▶ simultaneously to clear the memory "DELETE MEMORY" will appear and choose YES to delete.
It will be possible to store 64 consecutive measurements.
Pressing the **RED** key will generate a QR CODE for REPORT generation (Fig.12). The 64 locations can be organized in temporal order . The 'last measurement will always be saved in the first free CELL in ascending order (1...64).

CREATE REPORT
Press the **RED** key to generate the QR CODE.
Frame the QR CODE with your smartphone using the RAPID PRO REPORT APP.
All saved measurements will be entered into a REPORT with the option to export to pdf or csv.
Download the RAPIDPROREPORT APP for iOS and Android systems.

MEMORY
The N° column indicates the number of the measurement.
The FUNC column indicates the saved measurement with its settings.
Value column indicates the 'outcome of the measurement.
The outcome of the RCD measurement is indicated :
GREEN if the outcome is OK
RED if the outcome is NO OK.

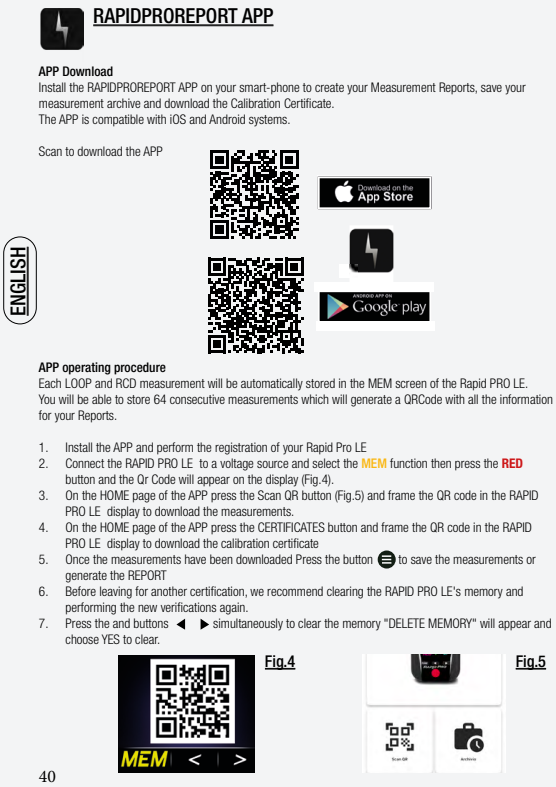
39

ESPAÑOL

APP RAPIDPROREPORT

DESCARGAR LA APP
Instala RAPIDPROREPORT en el smartphone para crear informes de medida, guardar el archivo de mediciones y descargar el certificado de calibración. La app es compatible con iOS y Android. Escanea para descargar la app.
PROCEDIMIENTO DE USO
Cada medida LOOP y RCD se guarda automáticamente en la pantalla MEM de RAPID PRO LE. Pueden almacenarse 64 medidas consecutivas, que generan un código QR con toda la información necesaria para los informes.
1. Instala la app y registra tu Rapid Pro LE.
2. Conecta RAPID PRO LE a una fuente de tensión, selecciona MEM y pulsa el botón ROJO: el código QR aparecerá en la pantalla (Fig. 4).
3. En la página HOME de la app, pulsa Scan QR (Fig. 5) y enmarca el código QR de la pantalla de RAPID PRO LE para descargar las medidas.
4. En HOME, pulsa CERTIFICATES y enmarca el código QR de la pantalla para descargar el certificado de calibración.
5. Una vez descargadas las medidas, pulsa el botón indicado para guardarlas o generar el INFORME.
6. Antes de iniciar otra verificación, se recomienda borrar la memoria de RAPID PRO LE y realizar las nuevas pruebas.
7. Pulsa simultáneamente los dos botones indicados para borrar la memoria. Aparecerá DELETE MEMORY; selecciona YES.

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios



RAPIDPROREPORT APP

APP Download
Install the RAPIDPROREPORT APP on your smart-phone to create your Measurement Reports, save your measurement archive and download the Calibration Certificate.
The APP is compatible with iOS and Android systems.

Scan to download the APP

Download on the App Store

ANDROID APP ON Google play

ENGLISH

APP operating procedure
Each LOOP and RCD measurement will be automatically stored in the MEM screen of the Rapid PRO LE.
You will be able to store 64 consecutive measurements which will generate a QRCode with all the information for your Reports.

1. Install the APP and perform the registration of your Rapid Pro LE
2. Connect the RAPID PRO LE to a voltage source and select the MEM function then press the RED button and the Qr Code will appear on the display (Fig.4).
3. On the HOME page of the APP press the Scan QR button (Fig.5) and frame the QR code in the RAPID PRO LE display to download the measurements.
4. On the HOME page of the APP press the CERTIFICATES button and frame the QR code in the RAPID PRO LE display to download the calibration certificate
5. Once the measurements have been downloaded Press the button to save the measurements or generate the REPORT
6. Before leaving for another certification, we recommend clearing the RAPID PRO LE's memory and performing the new verifications again.
7. Press the and buttons ◀ ▶ simultaneously to clear the memory "DELETE MEMORY" will appear and choose YES to clear.

Fig.4

Fig.5

40

ESPAÑOL

APP RAPIDPROREPORT

FUNCIÓN SCAN QR
Activa la cámara del smartphone para enmarcar el código QR mostrado en la pantalla de RAPID PRO LE y descargar las medidas.
ARCHIVO DE MEDIDAS
Las medidas descargadas y guardadas quedan disponibles en el archivo.
CERTIFICADOS
Activa la cámara del smartphone para enmarcar el código QR de la pantalla de RAPID PRO LE y descargar el certificado de calibración.
MANUALES
Permite descargar manuales de uso siempre actualizados.
EDITAR LAS MEDIDAS DESCARGADAS
1. Las medidas descargadas se enumeran de 1÷64; para cada una se muestran el resultado OK, el valor y los parámetros de medida.
2. Pulsa una medida para añadir un comentario.
3. Desliza de derecha a izquierda para mostrar Eliminar medida.
4. Empresa y Operador se introducen en la configuración de la app.
5. Pulsa el botón indicado para Guardar o Exportar.
6. La exportación incluye el certificado en PDF o CSV para su tratamiento con otro software.

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

ESPAÑOL

PRUEBA EVSE

RAPID PRO LE puede conectarse al producto opcional EVCHECK para comprobar estaciones de recarga de vehículos eléctricos según las normas siguientes:
CE/EN60364-7-722
IEC/EN61010-1
IEC/EN61851-1
Además de las pruebas de control CP y PP, pueden realizarse todas las medidas disponibles en RAPID PRO LE, como pruebas RCD de tipo A, AC y F, impedancia LOOP L-PE y L-N, armónicos y medidas de tensión.
Funcionamiento:
1. Conecta el CABLE TYPE 2 a la estación de recarga.
2. Coloca CP en la posición C.
3. Conecta Rapid Pro LE a la toma Schuko de EVCHECK.
4. Inicia las medidas desde RAPID PRO LE según el manual.

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

ENGLISH

EVSE TEST

The RAPID PRO LE can be connected to the optional EVCHECK product for testing electric vehicle charging stations according to the following STANDARDS:
CE/EN60364-7-722
IEC/EN61010-1
IEC/EN61851-1

In addition to the CP and PP Control tests, all measurements available in the RAPID PRO LE can be performed, such as RCD type A, AC, and F tests, L-PE and L-N LOOP Impedance, harmonics, and voltage measurements.

Operation:
1. Connect the TYPE 2 CABLE to the charging station
2. Set the CP to position C
3. Connect the Rapid Pro LE to the EVCHECK's Schuko socket
4. Start the measurements from the RAPID PRO LE as per the manual

42

ESPAÑOL

DATOS TÉCNICOS

ENTRADA:
Categoría de medida: CAT III 300V respecto a tierra
Rango de tensión: 190 A 440V AC
Rango de frecuencia: 42 ÷ 69 Hz
Corriente máxima de entrada: <25mA
Fluctuación de la tensión de entrada: 10%
Normas:
Normas de referencia: IEC/EN61557-3; IEC/EN61557-6
Normas de seguridad: IEC/EN61010-1; IEC/EN61010-2-030
EMC: IEC/EN61326-1
Pantalla y memoria:
Pantalla: TFT de 1.77"
Posiciones de memoria: 64
Condiciones ambientales:
Uso: interior
Altitud: 0 ÷ 2000 m
Temperatura de referencia: 0°C ÷ 23°C
Temperatura de uso: 0°C ÷ 40°C
Humedad relativa admisible: <80%RH
Temperatura de almacenamiento: -20°C ÷ 60°C
Humedad de almacenamiento: <80%RH
Grado de contaminación: 2
Características mecánicas:
Dimensiones: (81.5 x 70 x 83) mm
Peso: 120g

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

TECHNICAL DATA

INPUT:

Measurement Category:	CAT III 300V to ground
Voltage Range:	190 TO 440V AC
Frequency Range	42 ÷ 69 Hz
Maximum current input:	<25mA
Input voltage fluctuation	10%

Standards:

Reference Standards:	IEC/EN61557-3 IEC/EN61557-6
Safety Standards :	IEC/EN61010-1 IEC/EN61010-2-030
EMC:	IEC/EN61326-1

Display and Memory:

Display:	TFT 1.77" Display
Memory Locations:	64

Environmental Conditions

Usage:	internal
Altitude:	0 ÷ 2000 m
Reference temperature:	0°C ÷ 23°C
Usage temperature:	0°C ÷ 40°C
Allowable relative humidity:	<80%RH
Storage temperature:	-20°C ÷ 60°C
Storage humidity:	<80%RH
Pollution degree:	2

Mechanical characteristics:

Dimensions:	(81.5 x 70 x 83) mm
Weight:	120g

ENGLISH

43

ESPAÑOL

ESPECIFICACIONES TÉCNICAS

TENSIÓN TRMS
Tensión TRMS – Frecuencia de 42Hz a 69Hz ± 5%
Rango (V) | Resolución (V) | Precisión
0÷440 | 1 | ±(1% + 1dgt)
Protección contra sobrecargas hasta 440V
CAT III 300V
FRECUENCIA
Rango (Hz) | Resolución (Hz) | Precisión
42÷69 | 0,1 | ±(2% + 1dgt)
ARMÓNICOS DE TENSIÓN y THD%
Del 1.º al 50.º
Rango (V) | Resolución (V) | Precisión
0,8÷440 | 0,1 | ±(3% + 5dgt)
Los armónicos con amplitud inferior a 0.8V se ponen a cero. THD% se calcula según la fórmula indicada en el documento original.
PRUEBA DE TOMA PARA EL CABLEADO
Tensión L-PE de 190V÷269V – Frecuencia 50Hz ± 5%
NO PE: uso bloqueado hasta resolver el problema
Vc>50V: uso bloqueado hasta resolver el problema
LN invertidos: todas las pruebas pueden realizarse sin invertir la conexión
NO NEUTRAL: uso bloqueado hasta resolver el problema
L-PE invertidos: uso bloqueado hasta resolver el problema

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

ENGLISH

TECHNICAL SPECIFICATIONS

TRMS VOLTAGE
TRMS voltage - Frequency 42Hz to 69Hz ± 5%

Range (V)	Resolution (V)	Accuracy
0÷440	1	±(1% + 1dgt)

Overload protections up to 440V
CAT III 300V

FREQUENCY

Range (Hz)	Resolution (Hz)	Accuracy
42÷69	0,1	±(2% + 1dgt)

VOLTAGE HARMONICS and THD%
1 to 50th

Range (V)	Resolution (V)	Accuracy
0.8÷440	0,1	±(3% + 5dgt)

Harmonics with intensity less than 0.8V will be reset to zero
THD% is calculated as

Socket Test for Wiring
L-PE voltage from 190V÷269V - Frequency 50Hz ± 5%

ERROR	Resolution (V)
NO PE	Lockout Use until problem resolution
Vc>50V	Lockout Use until problem resolution
LN inverted	All Tests can be performed without reversing
NO NEUTRAL	Lockout Use until the problem is resolved
L-PE inverted	Lockout Use until the problem is resolved

44

ESPAÑOL

ESPECIFICACIONES TÉCNICAS

TIEMPO RCD
Tensión L-PE de 190V÷269V – Frecuencia 50Hz ± 5% – IEC/EN61557-6
Rango (ms) | Resolución (ms) | Precisión
0÷400 General | 0,1 | ±(1ms + 2dgt)
0÷500 Selectivo | 0,1 | ±(1ms + 2dgt)
Tipo de RCD AC, A y F
IΔn 30mA, 100mA, 300mA, 500mA, 650mA y 1A
Tiempo máximo de generación: 400ms para RCD GENERALES y 500ms para RCD SELECTIVOS; 1s para la prueba X1/2.
RAMPA RCD
Tensión L-PE de 190V÷269V – Frecuencia 50Hz ± 5% – IEC/EN61557-6
Rango (mA) | Resolución (mA) | Precisión
0÷30 (tipo AC) | 0,1 | ±(2mA + 2dgt)
0÷42 (tipo A, F) | 0,1 | ±(2mA + 2dgt)
Tipo de RCD AC, A y F; IΔn solo 30mA; tiempo máximo de generación 5s para RCD GENERALES.
RCD AUTO
Tensión L-PE de 190V÷269V – Frecuencia 50Hz ± 5% – IEC/EN61557-6
IΔn (mA) | 1/2 IΔn (mA) | 5 IΔn (mA)
AC/A/F: 30/42/42 | 15/10/10 | 150/212/212
AC/A/F: 100/141/141 | 50/33/33 | 500/707/707
AC/A/F: 300/424/424 | 150/100/100 | -/-/-
AC/A/F: 500/707/707 | 250/166/166 | -/-/-
AC/A/F: 650/919/919 | 325/216/216 | -/-/-
AC/A/F: 1000/1410/1410 | 500/333/333 | -/-/-
Tiempo máximo de generación: 400ms para RCD GENERALES y 500ms para RCD SELECTIVOS. El signo - indica que la medida no está disponible. Todos los valores de corriente generados incluyen la prueba de polaridad a 0° y 180°.

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

TECHNICAL SPECIFICATIONS

RCD TIME

L-PE voltage from 190V÷269V - Frequency 50Hz ± 5% - IEC/EN61557-6 STAN-

Range (ms)	Resolution (ms)	Accuracy
0÷400 General	0.1	±(1ms + 2dgt)
0÷500 Selective	0.1	±(1ms + 2dgt)

Type of RCD AC, A and F
IΔn 30mA, 100mA, 300mA, 500mA, 650mA and 1A
Maximum Generation Time: 400ms for GENERAL RCDs and 500ms for SELECTIVE RCDs
1s for the X1/2 test

RCD RAMP

L-PE voltage from 190V÷269V - Frequency 50Hz ± 5% - IEC/EN61557-6 standard

Range (mA)	Resolution (mA)	Accuracy
0÷30 (AC Type)	0.1	±(2mA + 2dgt)
0÷42 (Type A, F)	0.1	±(2mA + 2dgt)

Type of RCD AC, A and F
IΔn only 30mA
Maximum Generation Time: 5s for GENERAL RCDs

ENGLISH

RCD AUTO

L-PE voltage from 190V÷269V - Frequency 50Hz ± 5% - IEC/EN61557-6 standard

IΔn (mA)			1/2 IΔn (mA)			5 IΔn (mA)		
AC	A	F	AC	A	F	AC	A	F
30	42	42	15	10	10	150	212	212
100	141	141	50	33	33	500	707	707
300	424	424	150	100	100	-	-	-
500	707	707	250	166	166	-	-	-
650	919	919	325	216	216	-	-	-
1000	1410	1410	500	333	333	-	-	-

Maximum Generation Time: 400ms for GENERAL RCDs and 500ms for SELECTIVE RCDs
Sign - means that measures are not available
All current values generated include 0° and 180° polarity test

45

ESPAÑOL

ESPECIFICACIONES TÉCNICAS

LOOP Z L-PE
Tensión L-PE de 190V÷269V – Frecuencia 50Hz ± 5% – IEC/EN61557-3
Rango (Ω) | Resolución (Ω) | Precisión
0,01÷9,99 | 0,01 | ±(5% + 8dgt)
10÷99,9 | 0,1 | ±(5% + 8dgt)
100÷999 | 1 | ±(5% + 8dgt)
Corriente LOW de 7mA | | ±(8% + 12dgt)
LOOP Z L-N
Tensión L-N de 190V÷269V – Frecuencia 50Hz ± 5% – IEC/EN61557-3
Rango (Ω) | Resolución (Ω) | Precisión
0,01÷9,99 | 0,01 | ±(2% + 5dgt)
10÷99,9 | 0,1 | ±(2% + 5dgt)
100÷999 | 1 | ±(2% + 5dgt)
Protección contra sobrecargas hasta 440V. Corriente de cortocircuito Isc de 0.1A÷24KA; precisión referida a Z LOOP. CAT III 300V.

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

ENGLISH

TECHNICAL SPECIFICATIONS

LOOP Z L-PE
L-PE voltage from 190V÷269V - Frequency 50Hz ± 5% - IEC/EN61557-3 standard

Range (Ω)	Resolution (Ω	Accuracy
0.01÷9.99	0.01	±(5% + 8dgt)
10÷99.9	0.1	±(5% + 8dgt)
100÷999	1	±(5% + 8dgt)
LOW current of 7mA		±(8% + 12dgt)

LOOP Z L-N
Voltage L-N from 190V÷269V - Frequency 50Hz ± 5% - IEC/EN61557-3 standard

Range (Ω)	Resolution (Ω	Accuracy
0.01÷9.99	0.01	±(2% + 5dgt)
10÷99.9	0.1	±(2% + 5dgt)
100÷999	1	±(2% + 5dgt)

Overload protections up to 440V
Short Circuit Current Isc from 0.1A÷24KA Accuracy referred to Z LOOP.
CAT III 300V

46

ESPAÑOL

ESPAÑOL

Utilice un paño húmedo y una pequeña cantidad de detergente para limpiar la carcasa del instrumento.
No utilice productos abrasivos ni disolventes químicos.
Mantenimiento
El instrumento debe reciclarse como residuo electrónico

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

WARRANTY

This instrument is warranted against all defects in material and workmanship,in accordance with the general conditions of sale. During the warranty period, defective parts may be replaced, but the manufacturer reserves the right to repair or replace the product. If the instrument is to be returned to the after - sale service or to a dealer, transportation at the expense of the Customer. Shipping must, in all cases, be agreed upon in advance. Attached to the shipment must always be an explanatory note about the reasons for sending the instrument. Use only the original packaging for shipping. Any damage caused by the use of non-original packaging will be charged to the Customer. The manufacturer disclaims any liability for damage caused to persons or objects.

Warranty does not apply in the following cases:

- Repair and/or replacement of accessories (not covered by warranty).
- Repairs that are necessary due to incorrect use of the instrument or its use with incompatible equipment.
- Repairs that necessary due to improper packaging.
- Repairs that are necessary due to work performed by unauthorized personnel.
- Modifications made to the instrument without the manufacturer's authorization.
- Use not covered in the instrument specifications or user's manual.
- The contents of this manual may not be reproduced in any form without the permission of the manufacturer.
- Our products are patented and trademarks registered. The manufacturer reserves the right to make changes in specifications and prices if this is due to technological improvements.

ENGLISH

Maintenance

Use a damp cloth and a small amount of detergent to clean the instrument shell.

Do not use abrasive or chemical solvents.

Disposal

The 'instrument should be recycled as electronic waste

SERVICE

If the instrument is not working properly, check the condition of the sockets and the 'casing before contacting the Service Department. If the instrument continues to malfunction, check whether the operating procedure is in accordance with this manual.
If the instrument is to be returned to after -sales service or to a dealer, transportation is the responsibility of the Customer.
Shipping must, in any case, be agreed upon in advance.
Attached to the shipment must always be an explanatory note about the reasons for sending the instrument.
Use only the original packaging for shipping; any damage caused by the use of non-original packaging will be charged to the Customer.
Repairs must be carried out only by UNIKS Srl.

47

ESPAÑOL

UNIKS S.r.l.

Via Vittori 57, 48018 Faenza (RA) – Italia
Teléfono +39 0546 623002
Fax +39 0546 6236691
N.º IVA 02627000397
REA: RA - 218481
Correo info@uniks.it
www.uniks.it

Referencia visual de la página oficial original · valores, pantallas y esquemas sin cambios

Uniks Srl
Via Vittori 57, 48018 Faenza (RA) – Italia
Phone +39 0546 623002
Fax +39 0546 6236691
P.IVA 02627000397
REA: RA - 218481
mail info@uniks.it

www.uniks.it