



**DLRO Test Leads fitted with
duplex connector
Accessories Important Information**

This document provides important safety information. Keep with the accessories, DO NOT DISCARD !

These safety warnings must be read and understood before the instrument is used.

Always refer to the user manual of the instrument being used with these test leads.

Do not touch the universal connector during test or while connected to hazardous voltages.

Whenever possible, circuits should be de-energised before testing.

If it is impossible to de-energise the circuit, (e.g. high voltage batteries cannot be switched off while their connections are tested) the user must be aware of the dangers. The instrument terminals will become live when connected to the circuit. Therefore when used on hazardous voltages the Megger terminal cover (available separately) must be used. See the accessories section of this user guide.

When running any test, or when attached to a test load, do not undo the modular connections. Isolate both test leads before changing any part of the modular leadset.

These test leads on their own not safety CAT rated due to the bare hook terminations. However when fitted with insulating instrument terminal covers and a suitably rated test termination the overall safety CAT rating will be the lowest of the ratings between the instrument, the terminal covers and the test termination.

For example if used with a DLRO10HD fitted with terminal cover part number 1002-390 and a pair of DP1-C duplex probes the safety rating of the complete system will be CAT 300 V. However if the test terminations were changed to KC1-C kelvin clips the safety rating would drop to <30 V as the KC1-C are un-rated.

Testing inductive circuits can be hazardous:

- After testing an inductive load there will be an amount of energy stored in the inductance. This energy is released in the form of a discharge current. Disconnecting an inductive load while current is still flowing will cause a high voltage arc, which is a danger to both the user and the item under test
- The DLRO connector lit lead sets are fitted with a 'test in progress lamp' associated with the TEST button which indicates that current is flowing in the C1-C2 loop. For testing large inductive resistances the current carrying leads should be connected securely to the item under test before starting the test
- It is not recommended that duplex handspikes be used to carry out tests on inductive loads. If inadvertently using the handspikes on an inductive load, the L1 lamp on the handspikes will flash amber while discharge current flows, thereby duplicating the function of the 'I' lamp on the instrument. It is important to maintain contact until the L1 light stops flashing amber and turns green indicating the end of the test

This product is not intrinsically safe. Do not use in an explosive atmosphere.

Do not operate the test leads or connect to any external system if any visible signs of damage are apparent or if they have been stored for prolonged periods in unfavourable conditions.

Inspection

Before each use of the test leads, perform a thorough visual inspection to confirm that their condition is good, with no damaged or broken insulation.

The Measurement Category rating of the measurement system is that of the lowest rated component. If any part of the measurement leads is unrated, the instrument is safe for connection only up to 30 V."

CAT ratings:

CAT IV: Measurement category IV: Equipment connected between the origin of the low-voltage mains supply and the distribution panel.

CAT III: Measurement category III: Equipment connected between the distribution panel and the electrical outlets.

CAT II: Measurement category II: Equipment connected between the electrical outlets and the user's equipment. Measurement equipment may be safely connected to circuits at the marked rating or lower.

User Guide

Duplex connector test lead system for use with 10 A DLRO and BT51 instruments

The Megger DLRO duplex connector four terminal test lead system is designed to provide the most cost effective and convenient way to provide the user with all off the test lead terminations and lead lengths required for the many different applications encountered in low resistance testing.



At the centre of this unique test lead system is a bespoke connector allowing terminations such as kelvin clips or duplex test probes to be changed as required. There are two connector versions, one being fitted with indicator LEDs that operate with the DLRO10 range of instruments. The indicator LEDs provide enhanced safety and convenience with indications as follows:-

DLRO10, DLRO10X, DLRO10HD and DLRO10HDX

- Warning of connection to hazardous live voltage (Not DLRO10X, warning is given on the display)
- When continuity is made
- When a test complete and measurement is on instrument display

DLRO10X adds

- Indication of pass / fail to user set test limits

All of these important indications are therefore seen near the point of connection without needing to view the instrument display. There is even a 6m extension lead to provide the ultimate in flexibility.

Duplex connector system – component parts

Duplex connector test lead with indicator lights



These duplex test leads are single test leads supplied without probe or clip test terminations.

FEATURES

- Ultra bright LED indicator lights warning of:
 - Hazardous live voltage
 - Test continuity
 - Test complete
 - Pass / fail to set limits (DLRO10X only)
- Locking ring to prevent test termination disconnection
- Works with any connector termination
- Lead resistance :

■ 1.5 m long	20 mΩ
■ 3 m long	30 mΩ
■ 6 m long	40 mΩ
- Designed to fit and work with:
 - DLRO10
 - DLRO10X
 - DLRO10HD
 - DLRO10HDX

TL1.5-CL Test lead 1.5 m connector lit (1 supplied)	1006-456
TL3-CL Test lead 3 m connector lit (1 supplied)	1006-458
TL6-CL Test lead 6 m connector lit (1 supplied)	1006-459

Duplex connector test lead without indicator lights



These duplex test leads are single test leads supplied without probe or clip test terminations.

FEATURES

- Locking ring to prevent test termination disconnection
- Works with any connector termination
- Lead resistance :

■ 1.5 m long	20 mΩ
■ 3 m long	30 mΩ
■ 6 m long	40 mΩ
- Designed to fit:
 - DLRO10
 - DLRO10X
 - DLRO10HD
 - DLRO10HDX

TL1.5-C Test lead 1.5 m connector (1 supplied)	1006-452
TL3-C Test lead 3 m connector (1 supplied)	1006-454
TL6-C Test lead 6 m connector (1 supplied)	1006-455

There are separate versions available to fit the BT51 as follows:

TL3-C-BT51 Test lead 3 m connector for BT51 (1 supplied)	1007-023
TL6-C-BT51 Test lead 6 m connector for BT51 (1 supplied)	1007-024

Duplex connector extension lead



FEATURES

- 6 m long
- Locking ring to prevent disconnection
- Works with any duplex connector test lead without indicator lights
- Single extension lead resistance : 40 m ohms
- More than one may be used but take into account overall test resistance
- Note: 10 A operation possible on any 10 A DLRO instrument with:
 - Pair of 3 m test leads
 - Any test probe or clip termination
 - Two extension leads
 - Based on maximum 100 Ωm lead resistance specification

These extension leads are designed to fit any of these test leads

- TL1.5-C
- TL3-C
- TL6-C
- TL3-C-BT51
- TL6-C-BT51

EL6-C Extension lead 6 m connector (1 supplied)	1006-460
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Note: These extension leads will not fit any of the leads fitted with indicator lights

Lead test connection terminations available – sold individually

Duplex connector probe



DESCRIPTION

Duplex connector handspike with sprung loaded tips.

FEATURES

- Fits any duplex connector test lead or extension
- Replaceable gold plated, hardened steel, needle point probe tips for excellent low resistance contact
- Stainless steel springs to provide 1.3 kg probe force
- Ideal for general applications on none coated or corroded surfaces
- Optional serrated (waffle) tips available
- Connector to probe tip resistance : 14 mΩ

Maximum current rating: 10 A

Probe spacing between P and C tips: 6 mm

Will fit:
Any duplex connector test lead and extension lead

Safety:
CATIII 600 V only when suitable terminal covers are used

Spare / optional parts:
Replacement needle tips 2003-551
Waffle / serrated tips 25940-014
DP1-C duplex probe 1 - connector 1006-450

Duplex connector twist probe



DESCRIPTION

Duplex connector handspike with sprung twisting tips.

FEATURES:

- Fits any duplex connector test lead or extension
- None replaceable hardened and tempered square section probe tips
- Probes twist while compressing providing 2.4 kg sprung probe force
- Ideal for cutting through surface coatings or corrosion
- Connector to probe tip resistance : 10mΩ

Maximum current rating: 10 A

Probe spacing between P and C tips: 10mm

Will fit:
connector test lead and extension lead

Safety: <30 V only

DTP1-C duplex twist probe 1 - connector 1006-449

Concentric duplex connector probe



DESCRIPTION

Duplex connector concentric handspike with sprung loaded potential tip

FEATURES:

- Fits any duplex connector test lead or extension
- Connection via an outer hardened and tempered steel crown with two contact points or tips.
- Replaceable gold plated, hardened steel, needle point P tip
- P tip with stainless steel spring to provide 1.3 kg probe force
- Ideal for reaching deeply recessed terminal screws
- Ideal for connection to rivet heads or screw/bolt heads
- Connector to C crown tip resistance : 10 mΩ.

Maximum current rating: 10 A

Probe tip spacing:
Between two outer C tips 7.6 mm
P tip central between two C tips with 3.8 mm spacing

Probe dimensions:
From finger guard to tip 110 mm
Diameter is tapered from 14 mm nearest the finger guard to 11 mm at tip crown

Will fit
Any duplex connector test lead and extension lead

Safety <30 V only

Spare / optional parts
Replacement P needle tip 2003-551
Waffle / serrated P tip 25940-014
CP1-C concentric probe 1 - connector 1006-448

Heavy duty kelvin clip



KC1-C Kelvin Clip 1 - connector

1006-447

DESCRIPTION

Duplex connector Kelvin Clip 1 is a heavy duty clip for general purpose applications.

Maximum current rating: 10 A

Connector to clamp resistance: 14 mΩ

Clip capacity: 40 mm

Will fit
Any duplex connector test lead and extension lead

Safety <30 V only

Large touch proof insulated clip – adjustable jaw opening



KC2-C Kelvin Clip 2 - connector

1006-451

DESCRIPTION

Duplex connector Kelvin Clip 2 is a fully insulated touch proof clip for applications where a high safety rating is required.

Maximum current rating: 20 A

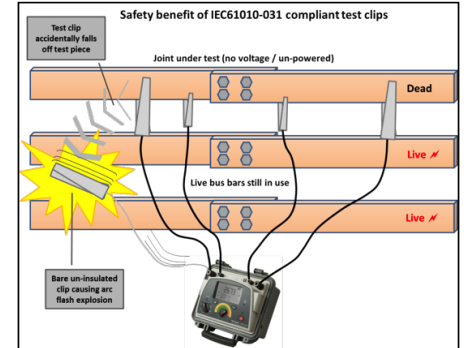
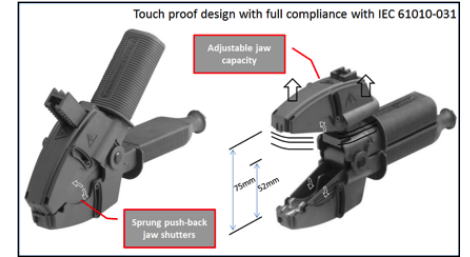
Connector to clamp resistance: 10 mΩ

Clip capacity:
52 mm to 75 mm with sliding jaw

Will fit
Any duplex connector test lead and extension lead

Safety CATIV 600 V

The actual safety CAT rating in use will always be the rating of the lowest part of the complete system For example if used with a DLRO10 without terminal covers the system will be unrated and must not be connected to live voltages above 30V.



In this example using a DLRO10HD a terminal cover should also be used

Complete duplex connector lead sets available

Probe lead-sets



DH1-C
3 m duplex handspike lead set, with connector (x2)
1006-442

DESCRIPTION

Two wire, four terminal duplex twist probe lead set 3 m long

Consists of the following:-

DTP1-C duplex twist probe x2

TL3-C-BT51 3 m lead connector x2

Will fit:-
BT51 and BT51 120 V



DH2-C
6 m / 20' version of DH1-C above but only 1 included
1006-443

Description

Single duplex twist probe lead - 6 m long.

Consists of the following:-

DTP1-C duplex twist probe x1

TL6-C-BT51 6 m lead connector x1

Will fit:-
BT51 and BT51 120 V



DH4-C
Two wire, four terminal duplex probe lead set - 1.5 m
One lead fitted with indicator lights. 1006-444

Description

Two wire, four terminal duplex probe lead set 1.5 m long.
One lead fitted with indicator lights.

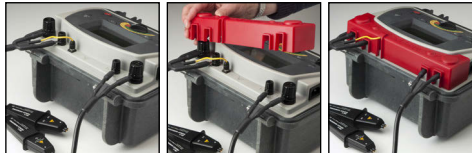
Consists of the following:-

DP1-C duplex probe x2

TL1.5-C 1.5 m connector lead x1

TL1.5-CL 1.5 m connector lead with indicator lights x1

Will fit:-
DLRO10, DLRO10X and DLRO10HD, DLRO10HDX



DH4-CHDC 1006-463

As DH4-C but supplied with DLRO10HD terminal cover for
CAT III 300 V rating

DH5-C as DH4-C but 3 m long 1006-445

Kelvin clip lead-sets



KC1-TL3-C
KL1-C Kelvin clip 3 m Lead set - connector (x2) 1006-462

Description

Two wire, four terminal kelvin clip lead set 3 m long.

Consists of the following:-

KC1-C Kelvin clip x2

TL3-C 3 m connector lead x1

TL3-CL 3 m connector lead with indicator lights x1

Will fit:-
DLRO10, DLRO10X and DLRO10HD, DLRO10HDX



KC2-TL3-C
KL2-C Insulated kelvin clip - Test Lead 3 m connector (x2)
1006-461

Description

Two wire, four terminal insulated kelvin clip lead set 3m
long.

Consists of the following:-

KC2-C Insulated kelvin clip x2

TL3-C 3 m connector lead x1

TL3-CL 3 m connector lead with indicator lights x1

Will fit:-
DLRO10, DLRO10X and DLRO10HD, DLRO10HDX

Duplex connector Test Lead System

Indicates quantity supplied or compatible option		Duplex connector individual parts - all available separately																
		Connector probes			Connector clips		Single connector Leads				Single connector leads with indicator lights				Connector extension lead	DLRO10HD cover		
Model reference	Description	CP1-C Concentric Probe	DTP1-C Duplex Twist Probe	DP1-C Duplex Probe	KC1-C Kelvin clip	KC2-C Insulated Kelvin Clip	TL1.5-C 1.5 m lead	TL3-C 3 m lead	TL6-C 6 m lead	TL1.5-C-C 1.5 m lead + terminal cover	TL1.5-CL 1.5 m lead	TL3-CL 3 m lead	TL6-CL 6 m lead	TL1.5-CL-C 1.5 m lead + terminal cover	EL6-C 6 m (no lights)	N/A Insulated cover for CATIII 300 V		
DLRO10 range- test lead sets available	DH1-C	DH1-C 3 m Connector Duplex Handspike (X2)	■	2	■	■	■	2	■	N/A	■	■	■	N/A	■	N/A	1006-442	
	DH2-C	DH2-C 6.0 m Connector Duplex Handspike (X1)	■	1	■	■	■	■	1	N/A	■	■	■	N/A	■	N/A	1006-443	
	DH4-C	DH4-C Connector Duplex Handspikes 1.5 m (X2)	■	■	2	■	■	1	■	N/A	1	■	■	N/A	■	■	1006-444	
	DH5-C	DH5-C Connector Duplex Handspike 3 m (X2)	■	■	2	■	■	■	1	■	■	1	■	N/A	■	■	1006-445	
	DH6-C	DH6-C, As DH4-C, 600V Rated For DLRO10 CAT III 600 V Rating	■	■	2	■	■	N/A	N/A	N/A	1	N/A	N/A	N/A	1	N/A	N/A	1006-446
	KC2-TL3-C	KL2-C Ins Kelvin Clip Ld 3 m Connector (X2)	■	■	■	■	2	■	1	■	■	■	1	■	■	■	■	1006-461
	KC1-TL3-C	KL1-C Kelvin Clip Lead 3 m Connector (X2)	■	■	■	2	■	■	■	N/A	■	1	■	N/A	■	N/A	N/A	1006-462
	DH4-CHDC	DH4-C Connex Duplex Hd Cativ 600V	■	■	2	■	■	1	■	■	N/A	1	■	■	N/A	■	1	1006-463
		1006-448	1006-449	1006-450	1006-447	1006-451	1006-452	1006-454	1006-455	1006-453	1006-456	1006-458	1006-459	1006-457	1006-460	1002-390	Order part numbers	

Megger[®]

The company reserves the right to change the specification or design without prior notice.

Megger is a registered trademark

Part No. 2007-431

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