cross currents

OCTOBER, 2006

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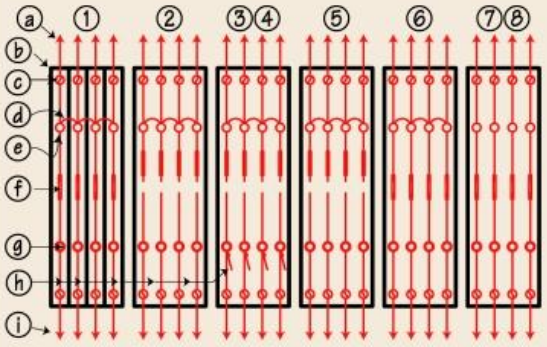
elmex SOLUTIONS FOR ELECTRICAL POWER INDUSTRY

PART II - TERMINALS WITH DISCONNECTING FEATURES

elmex Disconnecting Type Terminals with Sliding Links for CT Circuits

DIAGRAM SHOWING PRINCIPLE OF APPLICATION



1-8 Sequence of operations for testing relays and meters

a Wiring from CT secondary
b 4 nos. elmex Disconnecting Type Terminals
c elmex Screw Clamp Termination
d Shorting Cord for CT-Sec Shorting →
e Hollow Round Nuts (CT Side)
f Sliding Links
g As in "e" but Relay's side
h Current Source Test Cords →
i Wiring from Relays/Meters
d example of elmex shorting Link type SLD6 - 4 way for KULTD 6

elmex Disconnecting type terminals have certain special features, which make them eminently suited for application in CT secondary circuits. These features are of special interest to the end-users as well as designers of LT/HT switchgear and controlgear, because they provide an easy, quick and safe method of on-site testing of relays and meters, connected in the CT secondary circuits.

The special features of elmex disconnecting type terminals are:

1. **Sliding link**, easily slidable and operated by standard screw driver
2. **elmex shorting link** for single phase and 3 phase circuits for shorting adjacent terminals, and thereby CT-secondary.
3. **Long round nuts** (i.e. hollow studs), which receives standard banana pins. This feature enables users to prepare their own shorting cord and current-source test cords with banana pins, as shown in the diagram.

The sequence of operations on elmex disconnecting typeterminals with sliding links for on site testing, as shown in the diagrams, is summerised as follows:

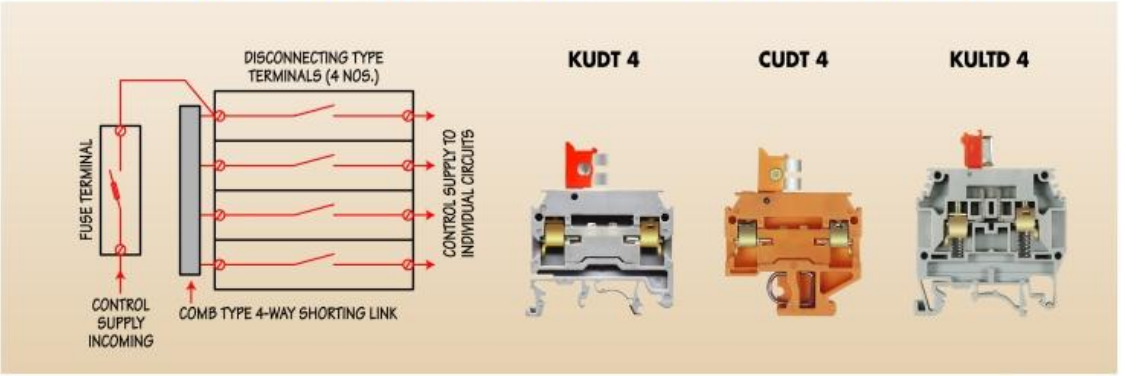
1. Short the CT side long round nuts of elmex terminals (using shorting cord or elmex shorting links)
2. Slide out the sliding link provided within the terminal, by loosening the securing screw and tightening it in slide-out position.
3. Connect current source test-cords to relay and meter side long round nuts of elmex terminals.
4. Conduct testing on relays and meters.

Sequence for returning to in-service status is just reversed:

5. Disconnect current-source test-cords.
6. Return sliding link to in-service position, and secure it by its fixing screw.
7. Remove shorting links/shorting cord.
8. Back to in-service position.

elmex shorting link type **SLD 6** for **KULTD 6** shown above, remains within the block of four terminals in service. This product, originally developed for ring main units, is now used for other applications also.

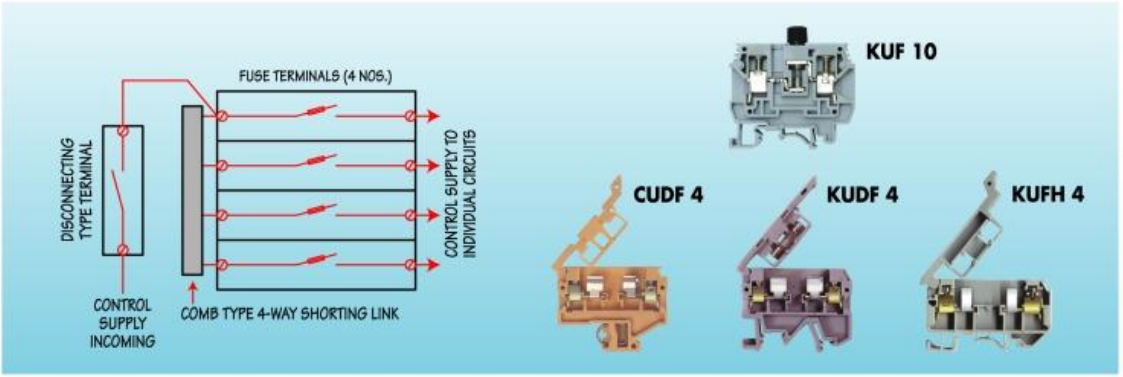
elmex DISCONNECTING TYPE TERMINALS WITH A HINGED LEVER



These terminals have a **hinged lever with a knife edge contact blade**, which can be used to close a circuit or open it, when required, like an isolator. The contact blade and the female brass contacts are silver plated to keep contact resistance to minimum.

These disconnecting type terminals facilitate **fault simulation** by opening the knife-edge contact, e.g. to examine effect of control-contact opening or effect of fuse blown condition. This feature is particularly useful during commissioning trials. This type of terminals together with *elmex* **comb type shorting links**, are also used as 'isolation' facility for **radial distribution of control supply** (see application diagram above). In the event of fault this feature permits isolation of faulty circuit quickly and conveniently, thereby reducing investigation time and **down time**. The terminal can also be used on control-supply incoming line for disconnecting control-supply (on no-load) without needing separate switch or manual disconnection of wires.

elmex FUSE TERMINALS



In switchgear and control applications **provision of fuses for different controls/indication circuits** is a common practice. Usually a separate assembly of a number of fuses is installed (rewireable, D-type or other miniature fuses), and wired up to individual circuits.

This traditional arrangement of control-circuit fuses **can be replaced by** *elmex* **fuse terminals** which house standard tubular glass fuse element integrally with the terminal, through the provision of a hinged lever that carries fuse holder. **LED indications** are optionally available, usable on different AC and DC voltages, which permit quick identification of **fuse-blown condition.**

Major advantage of this application of *elmex* fuse terminals lies in the **hinged lever feature** that permits very quick isolation of faulty circuit, as well as fuse replacement. *elmex* fuse terminals offer considerable savings in fuse assembly fabrication **costs** and installation **space** and therefore they are an **ideal choice in compact installations**. *elmex* **comb type shorting links** can be used for radial distribution of control-supply through individual fuses (see application diagram above).

In place of fuse element, a solid brass link **type DL4** can be used. The terminal then functions as disconnect type terminal.

Fuse terminal type **KUDF4** is rated for **2.5 sq mm** connection capacity and accommodates **5 x 20/5 x 25 mm** glass fuse cartridge, while fuse terminal type **KUFH4** is rated **4 sq mm** for **6.3 x 32 mm** glass fuse cartridge.

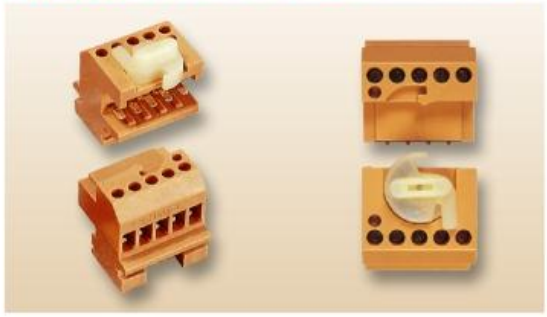
The fuse terminal type **KUF10** is a different design with **screw cap as fuse holder**. The isolation in this case is by removal of glass-fuse cartridge from terminal. It is rated **10 sq mm** and accommodates **5 x 20 sq mm** glass fuse cartridge.

elmex FUSE FEED THROUGH TERMINALS

This is an innovative application of double deck type of terminals : the **upper deck is fuse terminal** with hinged lever, while **lower deck is feed through terminal**.

This feature is very **useful in compact switchgear-panels with high wiring density**, as separate fuse installation is eliminated (by fuse terminal, upper deck) and separate feed-through terminals installation is also eliminated (by lower deck feed through). Fuse feed through terminal also enables control circuit and its fuse to be wired up on the same terminal block (e.g. +ve/phase to upper deck and -ve/neutral to lower deck). This feature reduces wiring time and can avoid wiring errors. **LED** for different AC/DC control circuit voltages are optionally available **for fuse-blown indication**.

elmex PLUG & SOCKET TERMINALS



The **draw out feature** in low voltage motor control centers is now a days almost standard practice, because of convenience in attending to feeder problems and convenience of routine maintenance and testing. The **semi draw out feature** is usually employed with smaller feeders, as a cost saving measure.

elmex plug and socket terminal type **PSC 1/5 is a very handy and compact companion of semi draw-out type motor control feeders**. In test position of a motor control switchgear unit, the control connections still remain connected for the motor control feeder, through ***elmex*** plug and socket terminal. When the unit is required to be drawn out fully, the plug is pulled out from the socket. A screw driver operated knob located on top-side **provides required locking and detachment facility between the plug and the socket**.

The terminal facilitates connection of **5-wires of sizes 0.5 to 2.5 sq mm**. It is mounted on TS32 DIN-Rails and has specially designed contact-system with non-relaxing springs for permanent high contact pressure. It is rated **600 V/25 A (each contact)**. Two numbers of PSC 1/5 can be used for control wires **upto 10 numbers, provided** possibility of plug-interchanging is suitably prevented.

The plug and socket terminal is also **very useful in machines-control applications**, as a flexible means of connecting controls and indication circuits for the machine, with its local switchgear cubicle.

The features of sliding links, hinged levers with knife-edge contacts and plug-socket incorporated in the above types of terminals, have the function of isolator, and hence they must be activated only under off-load conditions.

RoHS

COMPLIANT

The RoHS Directive No 2002/95/EC, issued by European Parliament and Council, is implemented by RoHS Regulations 2004 for restricting the use of certain hazardous substances in electrical and electronic equipment. The Directive is enforced by the Secretary of State for Trade and Industry in European Union with effect from July 1, 2006, and will apply to Electrical and Electronic Equipment (EEE) placed on European Union Market thereafter.

The Directive covers eight EEE upto 1000V AC (1500 V.DC) as at present, and restricts the use of following materials in manufacture of EEE or parts there of : Lead, Mercury, Cadmium, Hexavalent Chromium, Polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE). The last two materials are usually employed for flame-retardant property. The Regulations restrict the percentage content of these materials, specify certain exemptions in applying the Regulations, and give guidelines on demonstrating compliance. The enforcement authority, namely, secretary of State for Trade and Industry, is empowered to conduct market surveillance to detect non-compliance with the RoHS Regulations, and may even carry out tests for this purpose. The Regulations provide for a specified fine, if the products fail to comply when checked by the enforcement authority.

For details on the Directive and the Regulations, as also how to comply with them, it is best to log on to website : *www.rohs.gov.uk* and *www.dti.gov.uk*.

When the concentration of the above referred substances exceeds the specified limits, their burning (in service, or for waste disposal), and recycling, create products which are hazardous to human health and environment. Strictly speaking, Terminals Blocks as a class of products do not fall under any of the groups of products specified in the RoHS regulations. However, as a responsible Corporate Citizen, ***elmex*** has introduced RoHS compliant terminal blocks, in line with other global manufacturers. As such, ***elmex*** terminal blocks are free of hazardous substances, as required by the Regulations.

NEW

elmex FULLY ENCLOSED FINGER SAFE POWER TERMINALS

This is a **new addition** to the range of Power Terminals already discussed in July-06 issue of Cross Currents. It is a **fully enclosed** design with a hinged cap-cover for making connections. The terminals are in polyamide insulation and mounted on DIN-35mm rails with ratings of **70 sq mm**/1000V-192 Amp (SPT-70) and **35 sq mm**/1000V-140 Amp (SPT-35). These terminals accept **fork type** and **ring type** cable lugs as shown below.

SPT-35

SPT-70

we wish you all a very safe and happy diwali!

OUR PRODUCT RANGE

● Insulation Housings in Melamine, Polyamide (Nylon) 6.6, FRPP ● Conductor Clamping with Screw Clamps (MS & Brass), Spring Clamps, Bolted Connection, Anti-Vibration Spring-loaded Clamps ● Mounting on Standard DIN-rails TS 35, TS 32 and TS 15

Feed-through Terminals	Micro Terminals	Power (Bus Bar) Terminals	High Current Terminals	Distribution Blocks
Double Deck Terminals	Triple Deck Terminals	Disconnecting Type Terminals	Fuse Disconnection Terminal	Fuse Feed Through Terminals
Spring Clamp Terminals	All Brass Terminals	Plug & Socket type Terminals	Special Application Terminals (C.T.-Sec.)	Component Housing Terminals
Stud type Terminals	Spring Loaded Terminals	Lighting Pole Terminals	Earth Terminals	Special Application Switches
Plug-in type PCB Connectors	Low Consumption Relay Modules	Switching Mode Power Supplies (SMPS)	Digital Signal Processing Transducers	Surge Protecting Devices

We welcome your suggestions and queries regarding our products and feedback about CROSS CURRENTS. Write to us at ask@elmex.net

TÜV ISO 9001

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