

Cross currents

JANUARY, 2005

FOR PRIVATE CIRCULATION ONLY

We wish all our readers a very Happy and Prosperous New Year!

High Speed Switching Options with econix Opto-Coupler Modules

econix's **Opto-Coupler Modules** can provide a closing/opening control signal to the field circuit in **less than 1mSec** as against the 15 to 20 mSec required by a conventional electromagnetic relay.

econix opto-couplers protect the controller against **electromagnetic interference and other faults of field circuits**, by virtue of galvanic isolation (potential separation) provided by opto-coupler. Such protection is absolutely essential in modern control circuits **where highly sensitive sensors and high speed controllers are used**.

While econix's Opto-Coupler is designed to offer all the necessary safety to the system, it has a **number of distinct advantages** over electromechanical relays. These include,

- ⇒ **No mechanical parts, hence no fear of contact bounce**
- ⇒ **Low input power dissipation**
- ⇒ **Very high switching speed**
- ⇒ **Long life**
- ⇒ **Not affected by vibrations**

econix Opto-Coupler Modules are also provided **with input and output LED** for status monitoring. They can be supplied in different voltage and current ratings, and are available with,



- ⇒ **4, 8, 16 Channels**
- ⇒ **Input AC/DC**
- ⇒ **Output AC/DC for 3 Amps and 5 Amps with fuse and fuse blown indication**
- ⇒ **Sink or source mode output for DC voltages**

econix Opto-Coupler Modules can be specially configured as **per customized designs too**. Send your request to marketing@elmex.net

Fuse Terminals and Fuse Feed Through Terminals

Miniature fuses are often used in control and automation applications for protection of individual circuits. **elmex's** Fuse Terminals (single deck) and Fuse Feed Through Terminals (double deck) provide **space-saving and economic** solutions for circuit protection. They are designed with Hinged Levers to accommodate a **5x20mm or 5x25mm glass cartridge fuse**. The fuse holders are made of special grade phosphor bronze which offer a very low contact resistance. (see also : Types **KUFH4 & KUF10**, described in the present issue).

CUDF4 and **KUDF4** are **single deck** fuse terminals rated **6.3 A/4 sq mm**. **CUDDF4** and **KUDDF4** are **double deck**

terminals, where the upper deck functions as a **Fuse Terminal** and the lower deck as **Feed Through Terminal**. **Fuse-blown LED** indication is also available as an option, for both DC as well as AC control voltages (12, 24, 48, 110, 220 V DC and 110, 220 V AC).

In place of a fuse cartridge, a **solid brass link type DL4** is also offered, helping the terminal block to function as a **Disconnecting type**.



RECENT ADDITIONS TO THE *elmex* RANGE!



DPBB 50/70/120 : Feed-through type **Power (Busbar) Terminals**, in Polyamide 66 Housing, DIN Rail TS 35 mounted, respectively rated **150A/50 sq mm, 192 A/70**

sq mm and 269 A/120 sq mm. Flexible/Rigid Conductors are connected using **Fork/Ring Lugs**, secured by nut bolts, for both in and out termination (bolt-bolt design). (Refer Cross Currents, Dec. 03 issue.)

KULT4/6/1 : Feed-through type **Spring-loaded Terminal Blocks**, especially designed for higher vibration applications, rated **32A/4 sq mm, 41A/6 sq mm, 57A/10 sq mm** respectively, with Polyamide Housing and universal DIN Rail Mounting. **Hook-bladed Lugs** can be used with these designs for additional safety against accidental pull (Refer Cross Currents, July 04 issue.)



KULTD4/6 : **Disconnecting Type Spring-loaded Terminal Blocks**, especially designed for the Control and Instrumentation industry. KULTD4 is with **hinged knife edge lever**, to facilitate circuit disconnection quickly without actually removing the wires. KULTD6 is with sliding link for disconnection for **CT secondary application** which is discussed in Cross Currents, Dec. 03 issue. Hook-bladed Lugs can be used with these terminals. They are rated **20A/4 sq mm and 32A/6 sq mm** respectively.

KUFH4 : **Fuse Terminals** rated **12A/4 sq mm** similar to type KUDF4 (discussed in the present issue), but for a **larger size fuse of 6.3 x 32 mm**. As in the case of KUDF4, **fuse-blown indication by LED** with the same range of signal voltages is also available.



KUF10 : Similar to KUDF4 for fuse sizes 5x20 mm and 5x25 mm, but with **higher connection capacity (rated cross section) of 10 sq mm.** **LED** with same range of control voltages can be provided for fuse-blown indication.



DCC 2.5T/4T/6T : **Spring Clamp** (or **Cage Clamp**) **Terminals**, Universal DIN Rail Mounted, with Polyamide Housing, rated **24A/2.5 sq mm, 32A/4 sq mm** and

41A/6 sq mm, respectively.



LPT 225/235/325/335 : **Lighting Pole Terminals**, available in two varieties **2 way & 3 way**, each having two ratings **101A/25 sq mm and 125A/35 sq mm.** They are with Polyamide Housing and suitable for universal DIN Rail Mounting. They efficiently **replace the older termination technology** used in wiring of **streetlights and roadlighting in large plants and colonies.** (Refer Cross Currents, July 04 issue, for details.)

CBT 100/300 : **Power Terminals** for high current applications with Melamine Housing, DIN Rail TS 32 mounted and rated **100A/35 sq mm, and 300A/120 sq mm** respectively. They accommodate conductors with **Ring/Fork Lugs** secured by two nut connections.



CST 70/185 : **High Current Terminals** in Melamine Housing. They are TS 32 DIN Rail Mounted with ratings of **192A/70 sq mm and 353A/185 sq mm** respectively. They are suitable for connecting **stranded/solid cables in screw-clamp, or flat conductors, or ring/fork cables by bolting.** (Refer Cross Currents, Dec. 03 issue.)

KATM4/M5 : **Stud-Type Terminals** for universal Din Rail Mounting with Polyamide Housing, rated **57A/10sq mm and 76A/16sq mm** respectively. They are designed for **Ring/Fork Lugs** and secured by **screw connection.**



KBTM4/KBTM5 : These terminals have the same rating and size as for KATM4 and KATM5, but the **Ring/Fork Lugs** are secured by a **nut** instead of screw connection.

Many executives are seeking today enlightenment in their professional and personal lives. For such seekers of deeper knowledge, our chairman Shri J.D.Ray, suggests a few books from the *elmex* - Library :

- (1) **The Fifth Discipline** : by **Peter M.Senge** - The art and practice of the learning organisation
- (2) **The Power of Intention** : by **Dr.Wayne W. Dyer** - Learning to co-create your world your Way.
- (3) **Conversations with God** : by **Neale Donald Walsch** (Vols.1, 2 & 3) - An uncommon dialogue.

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



Switching Mode Power Supply (SMPS)

Econix Hi Tech Components Pvt. Ltd. is the exclusive marketing agent in India for the **SMPS systems** manufactured by **M/s. Reign Power Co. Ltd. Taiwan**. These **highly reliable SMPS** have the following **salient features**:

- ✓ Input Voltage : 90 - 264 volts AC, 47 - 63 Hz
- ✓ Output Voltage : 5, 12, 24, 48, volts DC
- ✓ Output Power : 35, 60, 72, 120, 200, 240 watts
- ✓ Built-in active power factor correction
- ✓ Ambient : 0 °C - 50 °C, 95% RH
- ✓ Low ripple
- ✓ Protected against over voltage, over load and short circuit
- ✓ Withstands 100% full load burn-in test
- ✓ Din Rail TS 35 / Panel Mounting
- ✓ Compact, economical, 2-year warranty

Flexion Test & Pull Out Test for Terminal Blocks

Tests for mechanical strength of Terminals (IEC 60947-7-1) are relatively less known to many purchasers and users of Terminal Blocks. These Tests are significant because they **distinguish the well-proven designs of reputed and technically superior manufacturers from all others.**

The Mechanical Strength Test **consists of two tests** to be performed one after the other in the sequence of **Flexion Test** and **Pull Out Test**. **The two tests are together designed to provide an accelerated simulation of the forces that the wires connected to Terminal Blocks can experience throughout their service life.** These forces on control wires can eventually result in the loosening of conductors, overheating, damage to terminal, and break in the electrical circuit, **if the terminal blocks are not properly designed/manufactured.**

The **Flexion Test** or "Test for damage to, and accidental loosening of, conductors" as per the title in the Standards, consists of loading the conductor with a specified weight and rotating the conductor, at a speed of 10+2 revolutions per minute, for a total of **135 revolutions**. For carrying out the test in a precise and reproducible manner, the Standard specifies (1) Test Equipment, its layout and all essential dimensions (2) Conductor sizes to be connected to Terminal Block (3) Tightening torque (screw-clamps), and (4) Weight to be suspended. During the test, the conductor must not slip out or break at the location of clamping.

The **Pull Out Test** is to be conducted **immediately after the Flexion Test**. The Terminal Block together with the conductor is shifted to the Pull Out Test equipment, without any kind of adjustments. This test consists of exerting static pull on the conductor by applying specified **pulling force for 1 minute**. During the test, conductor must neither slip out, nor break at the location of clamping.

The two tests are repeated for conductors specified in the Standards, and also for rigid and for flexible conductors, **thus requiring a series of tests for each type of approval.**

By way of an example, for a 2.5 sq mm conductor size, tightening torque for M3 size screws using screw driver is 0.5Nm, the suspended mass (Flexion Test) is 0.7 kg and Pull Out force is 50N. Similarly for an 185 sq mm conductor size, tightening torque with M10 screws is 4Nm, the suspended mass is 16.8 kg and Pull Out force is 503N.



AUTOMATION 2004

*Distinguished visitors, both national and international, visited **elmex-stall**, during October 14-17 at NSE Complex, Goregaon, Mumbai. They were impressed by **elmex-products** and had fruitful discussions with **elmex-executives**.*



cross currents



elmex AUTHORISED DEALERS

NORTH : DELHI : ADARSH ELECTRICALS 011-2386643 • D. K. TRADERS 011-23867518 • J. K. TRADING CO. 011-23869191, 238682707 • MAX ENGINEERING & MARKETING CO. 011-25887028, 25886756, 55492308 • PRIME ENGINEERING CO. 011-23862063, 23861907 • HARYANA : CHANDIGARH : DURGABHAI & CO. 0172-5089101, 2790569 • FARIDABAD : DELHI TRADING COMPANY 0129-2410261, 2413813 • GURGAON : NEW BRIGHT ELECTRICALS 0124-2223113, 2306309 • PUNJAB : LUDHIANA : GENERAL ELECTRIC & MACHINERY CORP. 0161-2540254, 2306309 **UTTAR PRADESH :** KANPUR : VISHONI ENGINEERS PVT. LTD. 0512-2314478, 3093659.

WEST : GUJARAT : AHMEDABAD : ANIK ENGINEERS 079-26560735, 26562169 • G.M. AGENCIES 079-22134416 • J. R. ELECTRICALS 079-22142447 • JAMNAGAR : PATEL ELECTRIC CORPORATION 0288-2554773, 2673747 • KIM : INDUSTRIAL TRADING COMPANY 02621-34524/47, 427715/16 • MEHSANA : MAHALAXMI ELECTRIC STORES 02762-241278, 248415 • SURAT : INDUSTRIAL CARES 0261-235724 • MEHTA & CO. 0261-2411387 • VAPI : RAHI CORPORATION 0260- 2428992 • VADODARA : UMANG ELECTRICALS 0265-2341792, 2536727

MADHYA PRADESH / CHHATTISGARH : BHOPAL : ENTERPRISING MARKETING ENGINEERS 0755-2532737 • EXCELSIOR ENGINEERING COMPANY 0755- 2745926 • BHILAI : SHREE ENTERPRISES 0788-2355689 • ENGINEERING SERVICES - 0788-2356986 • INDORE : A-ONE ELECTRICAL AGENCIES 0731-2533152 • RAIPUR : DAGA MACHINERY STORES 0771-524810, 533987 **MAHARASHTRA :** AURANGABAD : VENKATESH ELECTRICALS 0240-2320887 • GOA : ADVAIT TRADERS - 0631-2313113, 2314268 • KOLHAPUR : ARIHANT INDUSTRIAL ELECT 0231-2657692 • MUMBAI : DAVE SHAH & CO. (SWITCHGEAR) PVT. LTD. 022-2082322 • HARD CHEM ELECTRONICS 022- 25112848, 25116189 • M. J. TRADERS (DOWELL'S) 022-22060986, 22060992 • NIPUN & CO. 022-22087749 • PARAG TRADING CORPORATION 022-23862858, 23862133 • RAICHAND & SONS (ELECTRICALS) PVT. LTD. (ANDHERI) 022-28363445, (VASHI) 022-27892839, 27892806 • NAGPUR : METRO ELECTRICALS & INDUSTRIAL AGENCIES 0712-723222, 729909 • NASIK : VISHAKHA ENTERPRISES 0253-2576949 • PUNE : B.M. SALES/DEVEN ENGINEERS/ ENSECO 0212-24332291, 24335997 • THAKUR SHROFF & ELECTRIC CO. 022-2445886, 24454527 • SANGALI : DIPAK ENTERPRISES 0233-510126 **RAJASTHAN :** JAIPUR : EL-TRONICS 0141-2365730, 2379127 • JODHPUR : CHORDIA ELECTRICALS 0291-2435096, 2440062 • KOTA : ABHISHEK ENTERPRISES 0744-2363723, 2433673

EAST : JHARKHAND : JAMSHEDPUR : NAVLIGHT ELECTRICALS 0657-424842 • ARJUNIAL BANWARILAL & COMPANY PVT. LTD. 0657-2425822, 2423852 • GUIDE 0657-2426265 • JALARAM ELECTRICALS & ENGINEERING CO. 0657-2432438 • MEDITRON 0651-2435575, 2435541 • NANDI ELECTRICALS 0657-2423435 **ORISSA :** CUTTACK : KETAN ELECTRICALS 0671-2621986 • TALCHER : S. R. TRADERS 06760-241172, 240276 • WEST BENGAL : CALCUTTA : MITTAL AGENCIES 033-23351304 • SWITCHGEAR COMPONENTS 033-2357141 • VENUS ELECTRONICS 033-22152640, 23350559 • UNITED TRADERS & ENGINEERS 033-22352518 • HINDUSTAN COMMERCIAL AGENCY 033-22351298, 22351042

SOUTH : ANDHRA PRADESH : HYDERABAD : DILIP ENGINEERING COMPANY 040-27750479, 27752085 • VISHAKHAPATNAM : MERCURY AGENCIES 0891-263210

KARNATAKA : BANGALORE : CAUVERY ELECTRICALS 080-22873992, 22873996, 22252679 • MANIK ENTERPRISES 080-22875164 • MODERN ELECTRICALS 080-22263458, 22260552 • POWER & CONTROL SYSTEMS 080-22235982 • VISHAL ELECTRICALS 080-22870148 • BELGAUM : LOGIC ELECTRICAL & ENGINEERS - 0831-2441248 • MANGALORE : J.P. ELECTRICALS 0824 -2458050 **TAMIL NADU :** CHENNAI : DEEPAK ELECTRIC CORPORATION 044-25383431, 25386553, 25393097 • DELTON ELECTRICALS 044-5224184, 5304844 • SETH ELECTRICALS 044-25369256, 25369357 • SRI KALI ELECTRONICS 044 - 26359223 • COIMBATORE : UNITECH ELECTRICALS 0422 -2302282, 2301296 • VITRONIX 0422 -2301779, 2302730

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 	Power Terminals 	Distribution Blocks 	Earth Terminals 	Micro Terminals 
Double Deck Terminals 	Triple Deck Terminals 	Disconnecting Type Terminals 	Fuse Disconnection Terminal 	Lighting Pole Terminals 
PCB Connectors 	Special Application Terminals 	Component Housing 	Twin Terminals 	Plug & Socket type Terminals 
Passive Interface Modules 	Relay Boards 	Special Application Modules 	Switching Mode Power Supplies (SMPs) 	Custom-made Special Application Switches 



Elmex Controls Pvt. Ltd.
Econix Hi-Tech Components Pvt. Ltd.

12 GIDC Estate, Makarpura Road, Vadodara 390 010, India
 Telephones : +91-265-2642021, 2642023 ❖ Facsimile : +91-265-2638646
 e-mail : marketing@elmex.net ❖ URL : www.elmex.net

TECHNICAL SPECIFICATIONS MAY CHANGE IN LINE WITH TECHNICAL ADVANCES AND INDUSTRY STANDARDS.