

**U-POWER**

# OMEGA

**Air Circuit Breakers**



**L&T SWITCHGEAR**

SAFE & SURE

### Salient Features:

- Current rating from 400A to 6300A in 3 frame sizes
- Available in 3 Pole / 4 Pole, Manually & Electrically operated, Fixed / Draw-out version
- Common Height & Depth across the range
- High short time fault withstand capacity,  $I_{cu} = I_{cs} = I_{cw}$  for 1 sec for total selectivity
- 2500A in Fr-1 & 6300A in Fr-3 are one of the most compact air circuit breakers in terms of width & volume
- High mechanical and electrical operating life
- Neutral pole rating: 50%, 100% & 200% for versatile applications
- Available in both NRYB & RYBN configuration in 4 Pole ACBs
- In-built Electrical & Mechanical Anti-Pumping
- Complete range conform to IS / IEC 60947-2 & IEC 60947-2

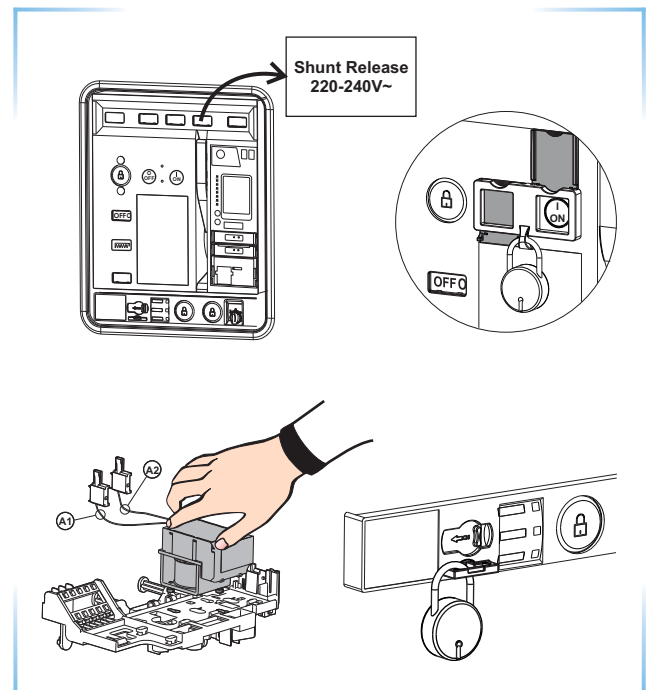


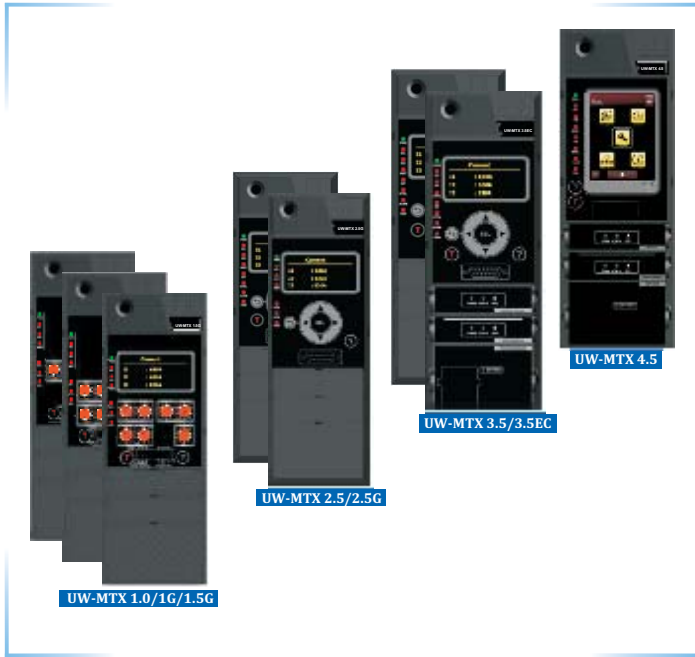
### Breaking Capacities :

|               |           | I <sub>cu</sub> = I <sub>cs</sub> = I <sub>cw</sub> (1 sec) |        |        |        |        |        |        |        |        |        |
|---------------|-----------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Rated current |           | 800A  | 1000A  | 1250A  | 1600A  | 2000A  | 2500A  | 3200A  | 4000A  | 5000A  | 6300A  |
| Frame-1       | N : 50kA  |   |        |        |        |        |        |        |        |        |        |
|               | S : 65kA  |   |        |        |        |        |        |        |        |        |        |
|               | H : 80kA  |   |        |        |        |        |        |        |        |        |        |
|               |           | UW1-08  | UW1-10 | UW1-12 | UW1-16 | UW1-20 | UW1-25 |        |        |        |        |
| Frame-2       | N : 50kA  |   |        |        |        |        |        |        |        |        |        |
|               | S : 65kA  |   |        |        |        |        |        |        |        |        |        |
|               | H : 80kA  |   |        |        |        |        |        |        |        |        |        |
|               |           | UW2-08  | UW2-10 | UW2-12 | UW2-16 | UW2-20 | UW2-25 | UW2-32 |        |        |        |
| Frame-3       | H : 80kA  |   |        |        |        |        |        |        |        |        |        |
|               | V : 100kA |   |        |        |        |        |        |        |        |        |        |
|               |           | UW3-08  | UW3-10 | UW3-12 | UW3-16 | UW3-20 | UW3-25 | UW3-32 | UW3-40 | UW3-50 | UW3-63 |

### Salient Features:

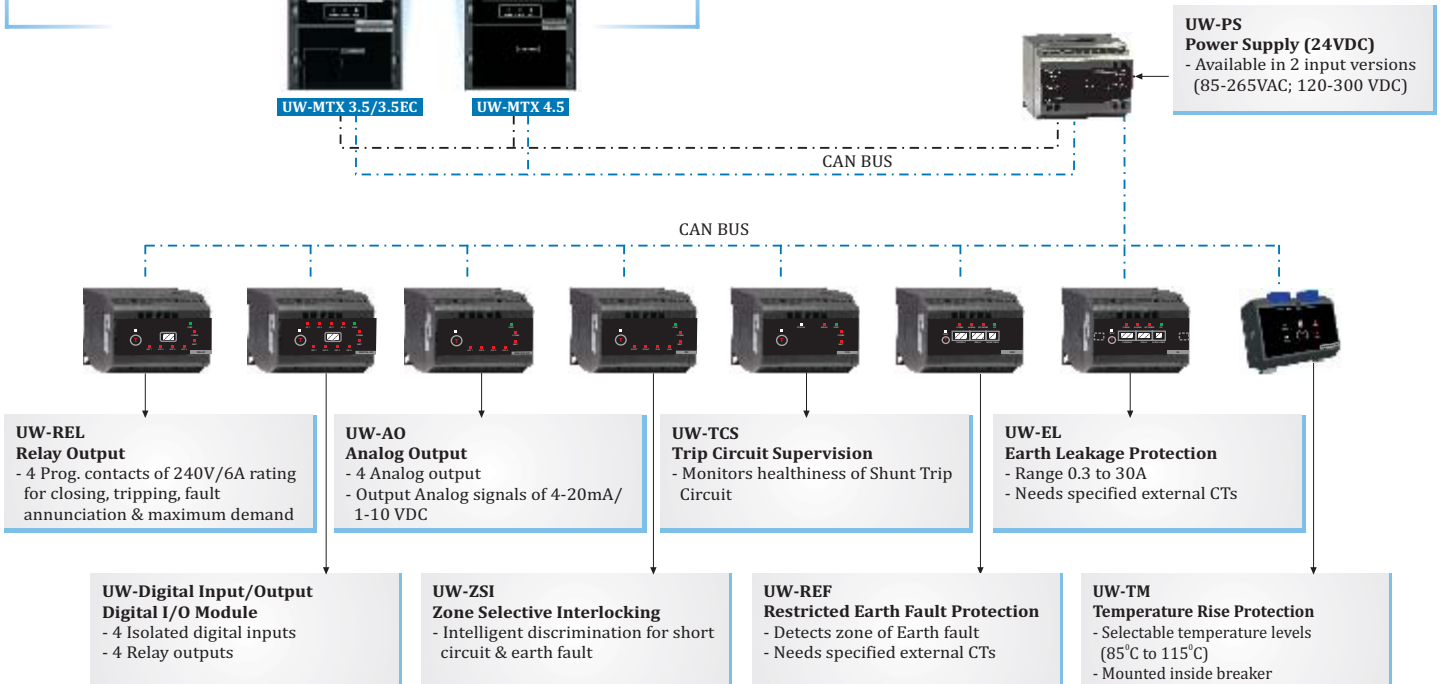
- Unique breaker front-facia architecture displays the electrical accessories equipped on the ACB (with rated control voltage & type of operating voltage)
- Superior safety features - arc chute interlock, smart racking shutter, ready to close
- Right aligned design to offer better utilization of space, especially in a multi-tier panel design
- Modular & snap-fit accessories such as UVR, SR, CR, redefine the modularity on time scale of 5 mins.
- Ease of on-site convertibility from Manual to Electrical & Fixed to Draw-out version
- Unipolar, snap-fit control terminals for independent termination of 2 wires of up to 2.5 mm<sup>2</sup> each
- ON & OFF buttons can be independently padlocked to prevent unauthorized access
- Racking shutter can be padlocked to prevent inadvertent racking operation
- Upto 3 breakers can be mechanically interlocked using bowden cable. The Interlock is suitable for fixed, draw-out or a combination





## Salient Features:

- Available in versions: MTX 1.0/1G/1.5G, MTX 2.5/2.5G, MTX 3.5/3.5EC/3.5H & MTX 4.5
- Unique O-LED display for wider viewing angle
- Touch Screen technology to provide ease in navigation in MTX 4.5
- Pluggable Communication & Power metering modules for customization & future upgradation
- Dual time-based protection set-groups & Password protection
- Soft-rating plug for precise protection at lower load currents
- Directional & Double Short-circuit protection
- Protection against temperature rise through TM module
- Switchable neutral overload protection (50% to 200% in steps of 5%)
- Advance protection - ZSI, TCS, REF, EL
- Local fault annunciation through LED indication & pre-trip alarm
- Trip & Event recording, Query button for last trip record
- Front accessible test port
- Provision for on-load self-diagnosis of releases
- Modbus, Profibus & Zigbee communication protocols
- Power & Harmonics measurement
- Easy to integrate with HMI & PLC
- Energy monitoring & control through Energy Management System
- Smart Card module for ease of parameterization
- Oscillographs to display pre & post fault current & voltage in MTX 4.5
- Protection releases conform to EMI/EMC standard



| Features                     | Parameter                         | MTX 1.0 | MTX 1G | MTX 1.5G | MTX 2.5 | MTX 2.5G | MTX 3.5 | MTX 3.5EC | MTX 3.5H | MTX 4.5 |
|------------------------------|-----------------------------------|---------|--------|----------|---------|----------|---------|-----------|----------|---------|
| Basic Protection             | Overload - Phase                  | ✓       | ✓      | ✓        | ✓       | ✓        | ✓       | ✓         | ✓        | ✓       |
|                              | Overload - Neutral                |         | ✓      | ✓        |         | ✓        | ✓       | ✓         | ✓        | ✓       |
|                              | Short Circuit                     | ✓       | ✓      | ✓        | ✓       | ✓        | ✓       | ✓         | ✓        | ✓       |
|                              | Directional Short Circuit         |         |        |          |         |          | ✓       | ✓         | ✓        | ✓       |
|                              | Instantaneous                     | ✓       | ✓      | ✓        | ✓       | ✓        | ✓       | ✓         | ✓        | ✓       |
|                              | Earth Fault                       |         | ✓      | ✓        |         | ✓        | ✓       | ✓         | ✓        | ✓       |
| Additional Protection        | Current                           |         |        |          |         |          | ✓       | ✓         | ✓        | ✓       |
|                              | Voltage                           |         |        |          |         |          | *       | ✓         | ✓        | ✓       |
|                              | Frequency                         |         |        |          |         |          | *       | ✓         | ✓        | ✓       |
|                              | Reverse Power                     |         |        |          |         |          | *       | ✓         | ✓        | ✓       |
|                              | Maximum Demand                    |         |        |          |         |          | *       | ✓         | ✓        | ✓       |
| Trip Records                 | Last 5 Trip Data                  |         |        |          | ✓       | ✓        | ✓       | ✓         | ✓        | ✓       |
| Event Records                | Last 10 Event Data                |         |        |          | ✓       | ✓        | ✓       | ✓         | ✓        | ✓       |
| Smart Card                   |                                   |         |        |          |         |          | *       | *         | *        | *       |
| Communication                | Modbus                            |         |        |          |         |          | *       | ✓         | *        | ✓       |
|                              | Profibus                          |         |        |          |         |          | *       | *         | *        | *       |
|                              | Zigbee (wireless)                 |         |        |          |         |          | *       | *         | *        | *       |
| Advance Protection           | Trip Circuit Supervision (TCS)    |         |        |          |         |          | *       | *         | *        | *       |
|                              | Zone Selective Interlocking (ZSI) |         |        |          |         |          | *       | *         | *        | *       |
|                              | Temperature Rise (TM)             |         |        |          |         |          | *       | *         | *        | *       |
|                              | Earth Leakage (EL)                |         |        |          |         |          | *       | *         | *        | *       |
|                              | Restricted Earth Fault (REF)      |         |        |          |         |          | *       | *         | *        | *       |
| Additional Features          | Relay Output                      |         |        |          |         |          | *       | *         | *        | *       |
|                              | Load Management                   |         |        |          |         |          | *       | *         | *        | *       |
|                              | Digital Input & Output            |         |        |          |         |          | *       | *         | *        | *       |
|                              | Analog Output                     |         |        |          |         |          | *       | *         | *        | *       |
| Metering                     | Current                           |         |        | ✓        | ✓       | ✓        | ✓       | ✓         | ✓        | ✓       |
|                              | % Loading                         |         |        |          | ✓       | ✓        | ✓       | ✓         | ✓        | ✓       |
|                              | Voltage                           |         |        |          |         |          | *       | ✓         | ✓        | ✓       |
|                              | Power & Energy                    |         |        |          |         |          | *       | ✓         | ✓        | ✓       |
|                              | Harmonics                         |         |        |          |         |          |         |           | ✓        | ✓       |
| Storable Settings (2 sets)   |                                   |         |        | ✓        | ✓       | ✓        | ✓       | ✓         | ✓        | ✓       |
| Power Supply Module (24 VDC) |                                   |         |        | *        | *       | *        | *       | *         | *        | ✓       |

\* - available as optional.

For detailed information please refer product literature.

### Simulation Kit:

- Universal test kit for all versions of Matrix P&C Unit
- Generates 3 phase current and voltage with adjustable phase angles
- Graphical display & smart GUI with multi functional key operation
- Portable & hand held device to simulate faults
- Dual Power ON - battery & external supply
- Auto sensing of P&C Unit connectivity
- Stores 10 test records



## Technical Details:

| Frame                                     |                      | 1   |                      |     |                   |     |     | 2        |     |     | 3        |     |        |     |
|---|----------------------|---|----------------------|-----|-------------------|-----|-----|----------|-----|-----|----------|-----|--------|-----|
| Rated uninterrupted current (In) (A) 50°C |                      | 400-2000                                      |                      |     | 2500 <sup>s</sup> |     |     | 400-3200 |     |     | 400-5000 |     | 6300 # |     |
| Version                                   |                      | N   | S                    | H   | S                 | H   | N*  | S        | H   | H   | V        | H   | V      |     |
| Rated operational voltage at 50/60 Hz     | U <sub>e</sub>       | upto 690V AC                                  |                      |     |                   |     |     |          |     |     |          |     |        |     |
| Rated insulation voltage at 50/60 Hz      | U <sub>i</sub>       | 1000V AC                                      |                      |     |                   |     |     |          |     |     |          |     |        |     |
| Rated impulse withstand voltage           | U <sub>imp</sub>     | 12kV (Main Circuit)                           |                      |     |                   |     |     |          |     |     |          |     |        |     |
| Suitability for isolation                 |                      | Yes   |                      |     |                   |     |     |          |     |     |          |     |        |     |
| Degree of protection on breaker front     |                      | IP40 Intrinsic, IP54 Available                |                      |     |                   |     |     |          |     |     |          |     |        |     |
| Pollution degree suitability              |                      | 4   |                      |     |                   |     |     |          |     |     |          |     |        |     |
| Utilization category                      |                      | B   |                      |     |                   |     |     |          |     |     |          |     |        |     |
| Compliance                                |                      | IS/IEC 60947 (Part-2), EN60947-2, IEC 60947-2 |                      |     |                   |     |     |          |     |     |          |     |        |     |
| Rated Ultimate S. C. Breaking Capacity    | I <sub>cu</sub> (kA) | 415/440V AC                                   | 50                   | 65  | 80                | 65  | 80  | 50       | 65  | 80  | 80       | 100 | 80     | 100 |
|   |                      | 500/550V AC                                   | 42                   | 55  | 70                | 55  | 70  | 42       | 55  | 70  | 70       | 85  | 70     | 85  |
|   |                      | 660/690V AC                                   | 36                   | 50  | 55                | 50  | 55  | 36       | 50  | 55  | 65       | 75  | 65     | 75  |
| Rated Service S. C. Breaking Capacity     | I <sub>cs</sub> (kA) | 415/440V AC                                   | 100% I <sub>cu</sub> |     |                   |     |     |          |     |     |          |     |        |     |
|   |                      | 500/550V AC                                   | 100% I <sub>cu</sub> |     |                   |     |     |          |     |     |          |     |        |     |
|   |                      | 660/690V AC                                   | 100% I <sub>cu</sub> |     |                   |     |     |          |     |     |          |     |        |     |
| Rated Short Time Withstand Capacity       | I <sub>cw</sub> (kA) | 0.5 sec                                       | 50                   | 65  | 80                | 65  | 80  | 50       | 65  | 80  | 80       | 100 | 80     | 100 |
|   |                      | 1.0 sec                                       | 50                   | 65  | 80                | 65  | 80  | 50       | 65  | 80  | 80       | 100 | 80     | 100 |
|   |                      | 3.0 sec                                       | 26                   | 36  | 44                | 36  | 44  | 26       | 44  | 50  | 65       | 75  | 65     | 75  |
| Rated S. C. Making Capacity               | I <sub>cm</sub> (kA) | 415/440V AC                                   | 105                  | 143 | 176               | 143 | 176 | 105      | 143 | 176 | 176      | 220 | 176    | 220 |
|   |                      | 500/550V AC                                   | 88                   | 121 | 143               | 121 | 143 | 88       | 121 | 154 | 154      | 187 | 154    | 187 |
|   |                      | 660/690V AC                                   | 76                   | 105 | 121               | 105 | 121 | 76       | 105 | 121 | 143      | 165 | 143    | 165 |
| Opening time (ms)                         |                      | 40  |                      |     |                   |     |     |          |     |     |          |     |        |     |
| Closing time (ms)                         |                      | 60  |                      |     |                   |     |     |          |     |     |          |     |        |     |
| Mechanical life                           | with maintenance     | 20000   |                      |     |                   |     |     | 15000    |     |     | 10000    |     |        |     |
| Electrical life                           | with maintenance     | 20000   |                      |     |                   |     |     | 15000    |     |     | 10000    |     |        |     |
|   | without maintenance  | 10000   |                      |     | 5000              |     |     | 5000     |     |     | 5000     |     | 2000   |     |

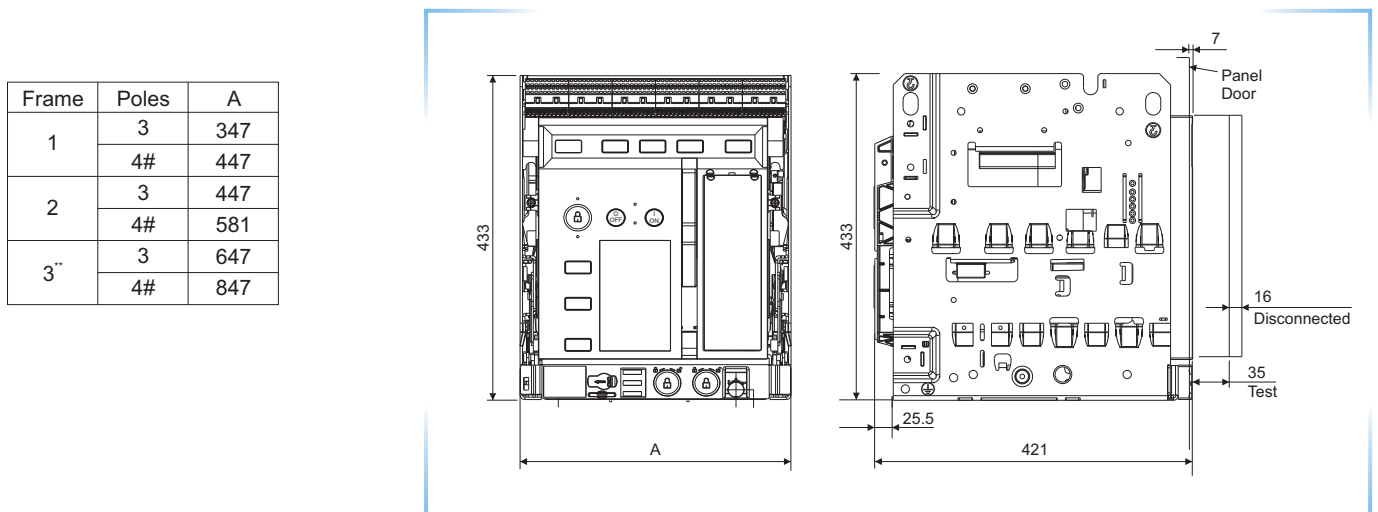
\* Available till 2500A

# Rated uninterrupted current (In) (A) 40°C.

\$ Please consult branch office for selection.

## Dimensional Details:

OMEGA offers common depth (421 mm) and height (433 mm) across the entire range.



# Dimensions for 100% N. Contact us for 50% N & 200% N.

\*\* Depth of Frame-3 ACB will be 10 mm additional with use of equalizer link.

(All dimensions in mm)



## Electrical Standard Products (ESP) Offices:

### HEAD OFFICE

L&T Business Park,  
Tower 'B' / 3rd Floor  
Saki Vihar Road, Powai  
**Mumbai 400 072**  
Tel: 022-67053229  
Fax: 022-67051112  
e-mail: cic@LNTEBG.com

### BRANCH OFFICES

501, Sakar Complex I  
Opp. Gandhigram Rly. Station  
Ashram Road  
**Ahmedabad 380 009**  
Tel: 079-66304006-11  
Fax: 079-66304025  
e-mail: esp-ahm@LNTEBG.com

38, Cubbon Road, P. O. Box 5098  
**Bangalore 560 001**  
Tel: 080-25020100 / 25020324  
Fax: 080-25580525  
e-mail: esp-blr@LNTEBG.com

131/1, Zone II  
Maharana Pratap Nagar  
**Bhopal 462 011**  
Tel: 0755-3080511 / 05 / 08 / 13 / 17 / 19  
Fax: 0755-3080502  
e-mail: esp-bho@LNTEBG.com

Plot No. 559, Annapurna Complex  
Lewis Road  
**Bhubaneswar 751 014**  
Tel: 0674-6451342, 2436690, 2436696  
Fax: 0674-2537309  
e-mail: esp-bsr@LNTEBG.com

Aspire Towers, 4th Floor  
Plot No. 55, Phase-I  
Industrial & Business Park  
**Chandigarh-160 002**  
Tel: 0172-4646840 / 41 / 42 / 46 / 53  
Fax: 0172-4646802  
Email: esp-chd@Lntebg.com

L&T Construction Campus  
TC-1 Building, II Floor  
Mount-Poonamallee Road  
Manapakkam  
**Chennai 600 089**  
Tel: 044-2270 6800  
Fax: 044-22706940  
e-mail: esp-maa1@LNTEBG.com

67, Appuswamy Road  
Post Bag 7156  
Opp. Nirmala College  
**Coimbatore 641 045**  
Tel: 0422-2588120 / 1 / 5  
Fax: 0422-2588148  
e-mail: esp-cbe@LNTEBG.com

Khairasol, Degaul Avenue  
**Durgapur 713 212**  
Tel: 2559848, 2559849, 2559844  
Fax: 0343-2553614  
e-mail: esp-dgp@LNTEBG.com

5, Milanpur Road, Bamuni Maidan  
**Guwahati 781 021**  
Tel: +91 8876554410 / 8876554417  
Fax: 361-2551308  
e-mail: esp-ghy@LNTEBG.com

II Floor, Vasantha Chambers  
5-10-173, Fateh Maidan Road  
**Hyderabad 500 004**  
Tel: 040-67015052  
Fax: 040-23296468  
e-mail: esp-hyd@LNTEBG.com

Monarch Building, 1st Floor  
D-236 & 237, Amrapali Marg  
Vaishali Nagar  
**Jaipur 302 021**  
Tel: 0141-4385914 to 18  
Fax: 0141-4385925  
e-mail: esp-jai@LNTEBG.com

Akashdeep Plaza, 2nd Floor  
P. O. Golmuri  
**Jamshedpur 831 003**  
Jharkhand  
Tel: 0657-2312205 / 38  
Fax: 0657-2341250  
e-mail: esp-jam@LNTEBG.com

Skybright Bldg; M. G. Road  
Ravipuram Junction, Emakulam  
**Kochi 682 016**  
Tel: 0484-4409420 / 4 / 5 / 7  
Fax: 0484-4409426  
e-mail: esp-cok@LNTEBG.com

3-B, Shakespeare Sarani  
**Kolkata 700 071**  
Tel: 033-44002572 / 3 / 4  
Fax: 033-22821025 / 7587  
e-mail: esp-ccu@LNTEBG.com

A28, Indira Nagar, Faizabad Road  
**Lucknow 226 016**  
Tel: 0522-4929905 / 04  
Fax: 0522-2311671  
e-mail: esp-Lko@LNTEBG.com

No: 73, Karpaga Nagar, 8th Street  
K. Pudur  
**Madurai 625 007**  
Tel: 0452-2537404, 2521068  
Fax: 0452-2537552  
e-mail: esp-mdu@LNTEBG.com

L&T Business Park,  
Tower 'B' / 5th Floor  
Saki Vihar Road, Powai  
**Mumbai 400 072**  
Tel: 022-67052874 / 2737 / 1156  
Fax: 022-67051112  
e-mail: esp-bom@LNTEBG.com

12, Shivaji Nagar  
North Ambajhari Road  
**Nagpur 440 010**  
Tel: 0712-2260012 / 6606421  
Fax: 2260030 / 6606434  
e-mail: esp-nag@LNTEBG.com

32, Shivaji Marg  
P. O. Box 6223  
**New Delhi 110 015**  
Tel: 011-41419514 / 5 / 6  
Fax: 011-41419600  
e-mail: esp-del@LNTEBG.com

L&T House  
P. O. Box 119  
191/1, Dhole Patil Road  
**Pune 411 001**  
Tel: 020-66033395 / 66033279  
Fax: 020-26164048 / 26164910  
e-mail: esp-pnq@LNTEBG.com

Crystal Tower,  
4th Floor, G. E. Road  
Telibandha  
**Raipur - 492 006**  
Tel: 0771-4283214  
e-mail: esp-raipur@LNTEBG.com

3rd Floor  
Vishwakarma Chambers  
Majura Gate, Ring Road  
**Surat 395 002**  
Tel: 0261-2473726  
Fax: 0261-2477078  
e-mail: esp-sur@LNTEBG.com

Radhadaya Complex  
Old Padra Road  
Near Charotar Society  
**Vadodara 390 007**  
Tel: 0265-6613610 / 1 / 2  
Fax: 0265-2336184  
e-mail: esp-bar@LNTEBG.com

Door No. 49-38-14/3/2, 1st floor,  
NGGO's Colony, Akkayyapalem,  
**Visakhapatnam - 530 016**  
Phone : 0891 2791126, 2711125  
Fax.: 0891 2791100  
Email: esp-viz@LNTEBG.com

Product improvement is a continuous process. For the latest information and special applications, please contact any of our offices listed here.



**Larsen & Toubro Limited, Electrical Standard Products**  
Powai Campus, Mumbai 400 072

### Customer Interaction Center (CIC)

BSNL / MTNL (toll free) : 1800 233 5858 Reliance (toll free) : 1800 200 5858  
Tel : 022 6774 5858, Fax : 022 6774 5859  
E-mail : cic@Lntebg.com / Website www.Lntebg.com

**Registered Office:** L&T House, N. M. Marg, Ballard Estate, Mumbai 400 001, INDIA **CIN:** L99999MH1946PLC004768

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