



***TemBreak***

*Circuit Breaker with Residual Current Protection (CBR)*

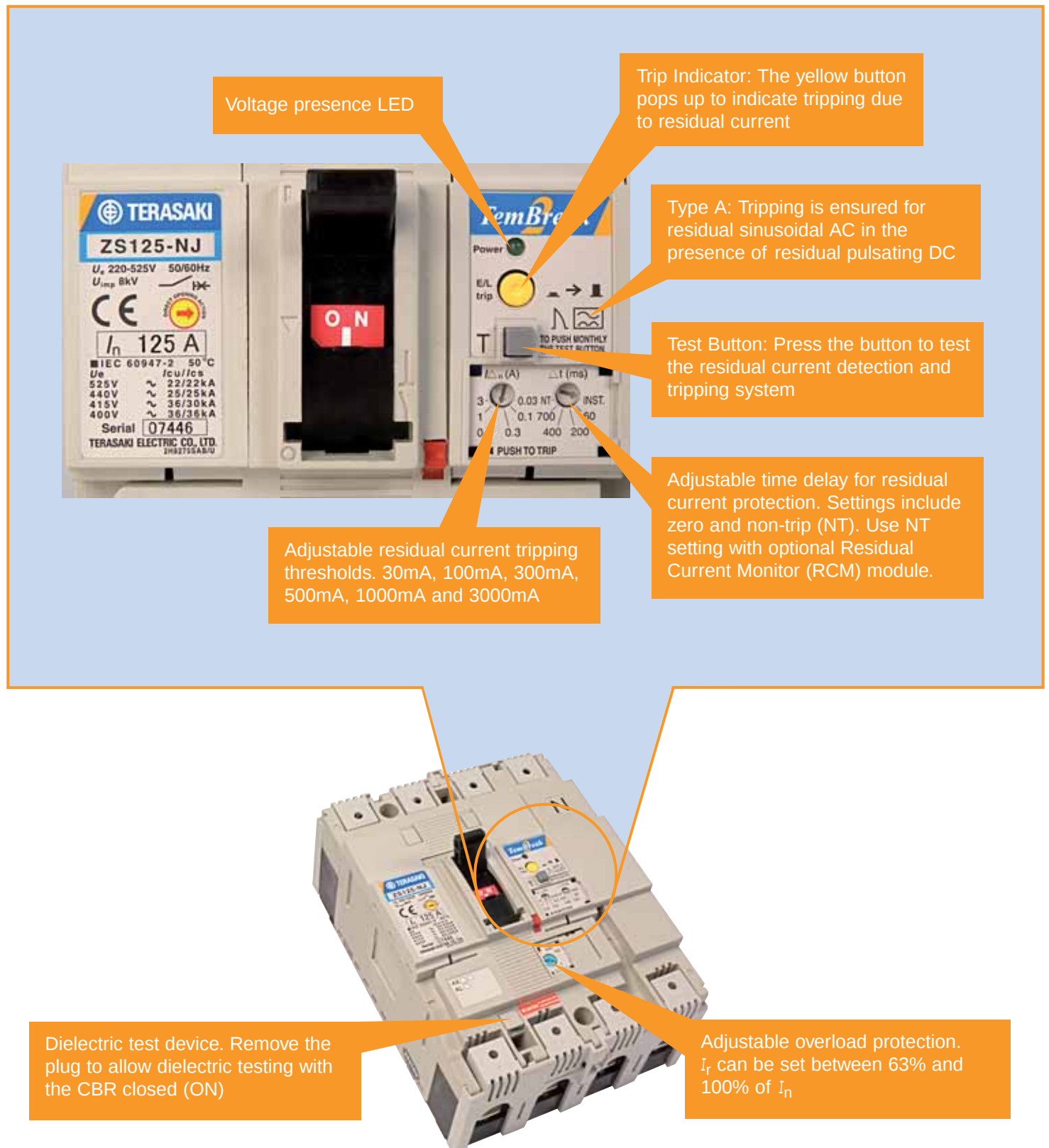


# THE NEW TEMBREAK 2 CBR

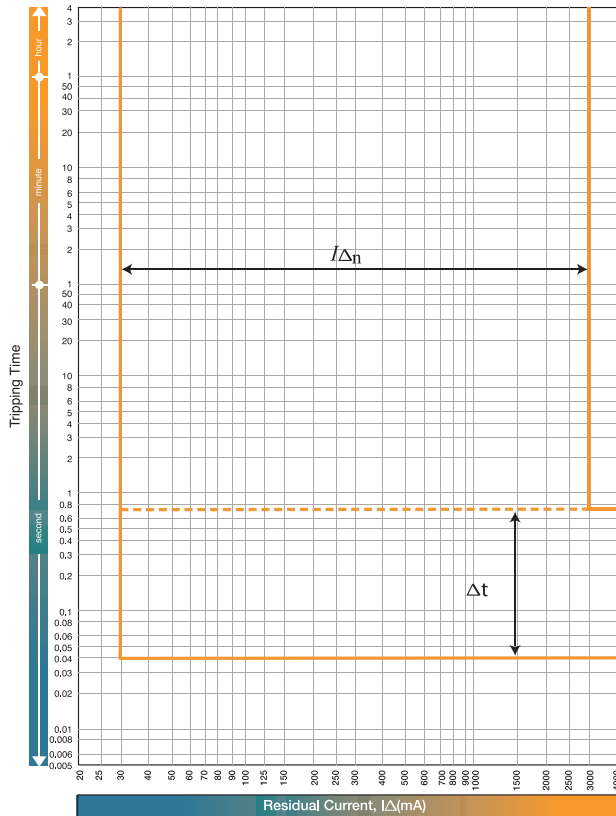
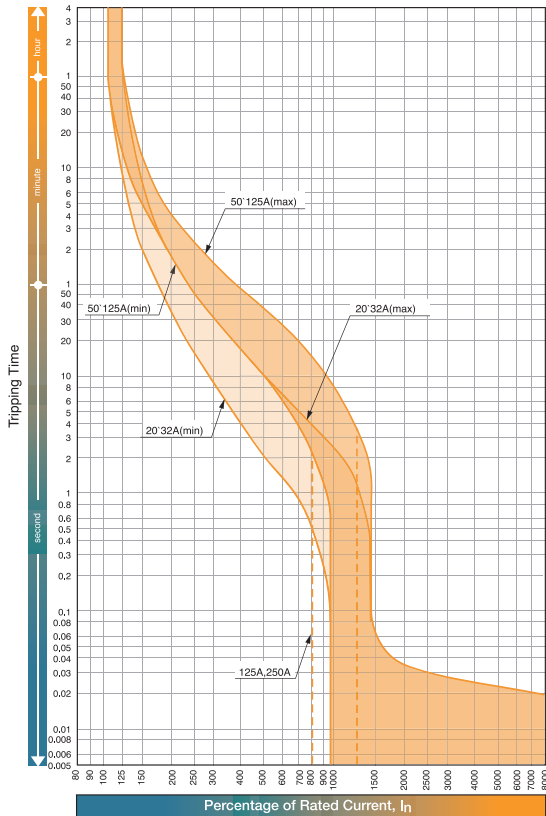
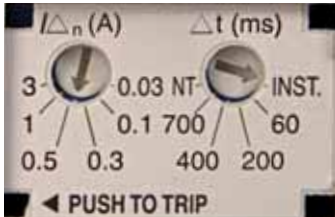
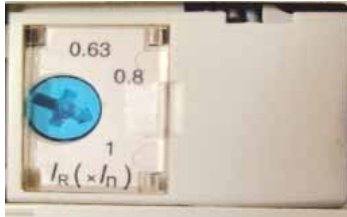
## HOW DOES THE TEMBREAK2 CBR SAVE SPACE?

1. The **TemBreak2** CBR has the same dimensions and fixings as the **TemBreak2** MCCB.
2. The **TemBreak2** CBR eliminates the need for either an external relay with current transformers or add-on block.

## FEATURES

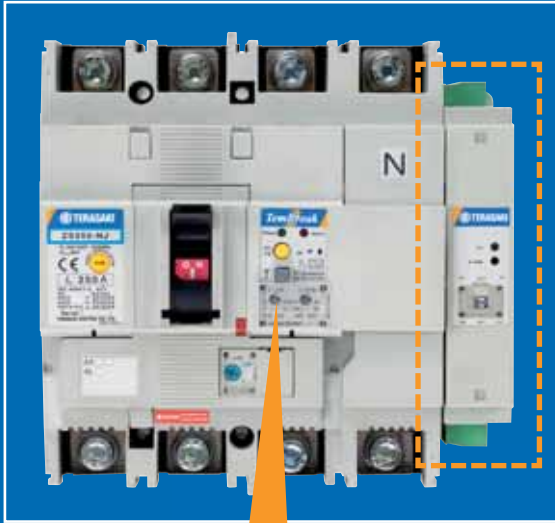


# OPERATING CHARACTERISTICS

| RESIDUAL CURRENT CHARACTERISTIC                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                    | OVERLOAD CHARACTERISTIC                                                                                                                                                                              | SHORT-CIRCUIT CHARACTERISTIC |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                        |                                                                    |                                                                                                                   |                              |
|                                                                                                                                                                                                                                                                                                                                                                       |                                                                    |                                                                                                                 |                              |
| <p><math>I\Delta_n</math> is the adjustable tripping threshold for residual current (earth leakage) protection. It can be set between 30mA and 3A. Available settings are shown below:</p>                                                                                                                                                                                                                                                               |                                                                    | <p><math>I_R</math> is the adjustable tripping threshold for overload protection. It can be set between 0.63 and 1.0 times <math>I_n</math>. Available <math>I_n</math> ratings are shown below:</p> |                              |
| <p><math>\Delta_t</math> (ms) is a time delay which is introduced to the residual current (earth leakage) protection characteristic. Available settings are shown below. It can also be set to 0 (max. actual tripping time is 40ms) or NT (No Trip - tripping time = <math>\infty</math>). The maximum breaking time at each setting is shown in brackets. Note that if <math>I\Delta_n</math> is set at 30mA, <math>\Delta_t</math> defaults to 0.</p> |                                                                    | <p><math>I_i</math> is the tripping threshold for short-circuit protection. It is fixed at the values shown below:</p>                                                                               |                              |
| $I\Delta_n$ (A)                                                                                                                                                                                                                                                                                                                                                                                                                                          | $\Delta_t$ (ms)                                                    | $I_n$ (A)                                                                                                                                                                                            | $I_i$                        |
| 0.03, 0.1, 0.3, 0.5, 1, 3                                                                                                                                                                                                                                                                                                                                                                                                                                | 0 (40), 60 (195), 200 (365), 400 (620), 700 (950), NT ( $\infty$ ) | 20, 32, 50, 63, 100                                                                                                                                                                                  | $12 \times I_n$ (+/- 20%)    |
| 0.03, 0.1, 0.3, 0.5, 1, 3                                                                                                                                                                                                                                                                                                                                                                                                                                | 0 (40), 60 (195), 200 (365), 400 (620), 700 (950), NT ( $\infty$ ) | 125                                                                                                                                                                                                  | $10 \times I_n$ (+/- 20%)    |
| 0.03, 0.1, 0.3, 0.5, 1, 3                                                                                                                                                                                                                                                                                                                                                                                                                                | 0 (40), 60 (195), 200 (365), 400 (620), 700 (950), NT ( $\infty$ ) | 160                                                                                                                                                                                                  | $13 \times I_n$ (+/- 20%)    |
| 0.03, 0.1, 0.3, 0.5, 1, 3                                                                                                                                                                                                                                                                                                                                                                                                                                | 0 (40), 60 (195), 200 (365), 400 (620), 700 (950), NT ( $\infty$ ) | 250                                                                                                                                                                                                  | $10 \times I_n$ (+/- 20%)    |

# THE NEW TEMBREAK 2 CBR

## ACCESSORIES



A wire-sealing accessory is available to restrict access to the residual current protection settings

### RESIDUAL CURRENT MONITOR AND REMOTE TRIP MODULE.

- \*Normally open alarm contact (2A, 250V AC) closes on detection of residual current. Alarm threshold is adjustable
- \*Green LED indicates voltage is present
- \*Red LED provides visual indication of residual current
- \*Can be configured to provide trip + alarm or alarm only
- \*Remote trip terminals allow tripping by pushbutton
- \*Can be configured to provide voltage drop protection



The external accessories listed below are available for **TemBreak2** CBRs. They are common to **TemBreak2** MCCBs. For details and dimensions, refer to "**TemBreak2**, The Ultimate Safety Breaker, 07-I61EU".

Terminal bars; cable clamps; rear connections; DIN rail mounting (ZE125 and ZS125 only); door-mounted handle; breaker-mounted handle; motor operator terminal covers for front connection; terminal covers for cable clamps; toggle lock.



The internal accessories listed below are available for **TemBreak2** CBRs. They are common to **TemBreak2** MCCBs. For details, refer to "**TemBreak2**, The Ultimate Safety Breaker, 07-I61EU".

Auxiliary switch and alarm switch.

# RATINGS AND SPECIFICATIONS

## CBR ELECTRICAL CHARACTERISTICS TO IEC 60947-1, IEC 60947-2, IEC 60947-2 ANNEX B, IEC 60755

Note:  
All ratings are guaranteed when  
the CBR is reverse-connected!\*

| Frame                                           | Quantity                                   | Unit                                 | Condition                                | 125                         |                             |                             | 250              |             |             |
|-------------------------------------------------|--------------------------------------------|--------------------------------------|------------------------------------------|-----------------------------|-----------------------------|-----------------------------|------------------|-------------|-------------|
| Model                                           |                                            |                                      |                                          | ZE125                       | ZS125                       | ZS125                       | ZE250            | ZS250       | ZS250       |
| Type                                            |                                            |                                      |                                          | NJ                          | NJ                          | GJ                          | NJ               | NJ          | NG          |
| Number of Poles                                 |                                            |                                      |                                          | 3, 4                        | 3, 4                        | 3, 4                        | 3, 4             | 3, 4        | 3, 4        |
| Nominal current ratings                         |                                            |                                      |                                          |                             |                             |                             |                  |             |             |
|                                                 | $I_n$                                      | (A)                                  | 50°C                                     | 20,32,<br>50,63,<br>100,125 | 20,32,<br>50,63,<br>100,125 | 20,32,<br>50,63,<br>100,125 | 160,<br>250      | 160,<br>250 | 160,<br>250 |
| Electrical characteristics                      |                                            |                                      |                                          |                             |                             |                             |                  |             |             |
| Rated operational voltage                       | $U_e$                                      | (V)                                  | AC 50/60 Hz                              | 525                         | 525                         | 525                         | 525              | 525         | 525         |
| Rated impulse withstand voltage                 | $U_{imp}$                                  | (kV)                                 |                                          | 8                           | 8                           | 8                           | 8                | 8           | 8           |
| Ultimate breaking capacity<br>(IEC, JIS, AS/NZ) | $I_{cu}$                                   | (kA)                                 | 525V AC                                  | 8                           | 22                          | 25                          | 10               | 25          | 25          |
|                                                 |                                            |                                      | 440V AC                                  | 15                          | 25                          | 50                          | 15               | 25          | 50          |
|                                                 |                                            |                                      | 400/415V AC                              | 25                          | 36                          | 65                          | 25               | 36          | 65          |
|                                                 |                                            |                                      | 220/240V AC                              | 35                          | 50                          | 85                          | 35               | 65          | 85          |
| Service breaking capacity<br>(IEC, JIS, AS/NZ)  | $I_{cs}$                                   | (kA)                                 | 525V AC                                  | 6                           | 22                          | 22                          | 7.5              | 25          | 25          |
|                                                 |                                            |                                      | 440V AC                                  | 12                          | 25                          | 25                          | 12               | 25          | 25          |
|                                                 |                                            |                                      | 400/415V AC                              | 19                          | 36/30                       | 36/33                       | 19               | 36          | 36          |
|                                                 |                                            |                                      | 220/240V AC                              | 27                          | 50                          | 85                          | 27               | 65          | 85          |
| Protection                                      |                                            |                                      |                                          |                             |                             |                             |                  |             |             |
| Adjustable thermal, adjustable magnetic         |                                            |                                      |                                          | ■                           | ■                           | ■                           | ■                | ■           | ■           |
| Residual current protection, Type A             |                                            |                                      |                                          | ■                           | ■                           | ■                           | ■                | ■           | ■           |
| Utilisation category                            |                                            |                                      |                                          | A                           | A                           | A                           | A                | A           | A           |
| Installation                                    |                                            |                                      |                                          |                             |                             |                             |                  |             |             |
| Front connection (FC)                           | height<br>width<br><br>depth<br><br>weight | (mm)<br>(mm)<br>(mm)<br>(mm)<br>(kg) | 3 pole<br>4 pole<br><br>3 pole<br>4 pole | ■                           | ■                           | ■                           | ■                | ■           | ■           |
| Attached flat bar (FB)                          |                                            |                                      |                                          | ●                           | ●                           | ●                           | ●                | ●           | ●           |
| Solderless terminal (cable clamp) (FW)          |                                            |                                      |                                          | ●                           | ●                           | ●                           | ●                | ●           | ●           |
| Rear connection (RC)                            |                                            |                                      |                                          | ●                           | ●                           | ●                           | ●                | ●           | ●           |
| Plug-in (PM)                                    |                                            |                                      |                                          | -                           | -                           | -                           | -                | -           | -           |
| DIN rail mounting (DA)                          |                                            |                                      |                                          | ●                           | ●                           | ●                           | ●                | ●           | ●           |
| Dimensions                                      |                                            |                                      |                                          | 155                         | 155                         | 155                         | 165              | 165         | 165         |
|                                                 |                                            |                                      |                                          | 90                          | 90                          | 90                          | 105              | 105         | 105         |
| Weight                                          | 120                                        | 120                                  | 120                                      | 140                         | 140                         | 140                         |                  |             |             |
|                                                 | 68                                         | 68                                   | 68                                       | 68                          | 68                          | 68                          |                  |             |             |
| Weight                                          | 1.1                                        | 1.1                                  | 1.1                                      | 1.5                         | 1.5                         | 1.5                         |                  |             |             |
|                                                 | 1.4                                        | 1.4                                  | 1.4                                      | 1.9                         | 1.9                         | 1.9                         |                  |             |             |
| Operation                                       |                                            |                                      |                                          |                             |                             |                             |                  |             |             |
| Direct Opening Action                           |                                            |                                      |                                          | ■                           | ■                           | ■                           | ■                | ■           | ■           |
| Toggle operation                                |                                            |                                      |                                          | ■                           | ■                           | ■                           | ■                | ■           | ■           |
| Variable depth/direct mount                     |                                            |                                      |                                          |                             |                             |                             |                  |             |             |
| operating handle (HB/HP)                        |                                            |                                      |                                          | ●                           | ●                           | ●                           | ●                | ●           | ●           |
| Mechanical Interlocks                           |                                            |                                      |                                          | -                           | -                           | -                           | -                | -           | -           |
| Motor Operator (MC)                             |                                            |                                      |                                          | ●                           | ●                           | ●                           | ●                | ●           | ●           |
| Insulation Accessories                          |                                            |                                      |                                          |                             |                             |                             |                  |             |             |
| Terminal covers and interpole barriers          |                                            |                                      |                                          | ●                           | ●                           | ●                           | ●                | ●           | ●           |
| Switchboard Accessories                         |                                            |                                      |                                          |                             |                             |                             |                  |             |             |
| Door Flange                                     |                                            |                                      |                                          | -                           | -                           | -                           | -                | -           | -           |
| Toggle Lock                                     |                                            |                                      |                                          | ●                           | ●                           | ●                           | ●                | ●           | ●           |
| Endurance                                       |                                            |                                      |                                          |                             |                             |                             |                  |             |             |
|                                                 | Electrical                                 | cycles                               | 415V AC                                  | 30,000<br>30,000            |                             |                             | 30,000<br>30,000 |             |             |
|                                                 | Mechanical                                 | cycles                               |                                          |                             |                             |                             |                  |             |             |

\* Supply voltage connected to bottom terminals

■ Standard    • Optional    - Not Available

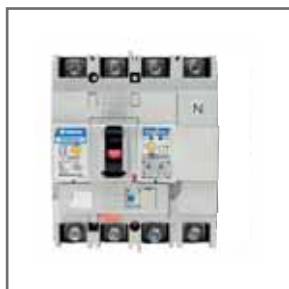
# ORDER CODES

## 125A FRAME CBRS



| Model                       | $I_R$ (A) | 3P             | 4P             | 3P                                                   | 4P             |
|-----------------------------|-----------|----------------|----------------|------------------------------------------------------|----------------|
|                             |           |                |                | with residual current monitor and remote trip module |                |
| ZE125-NJ<br>$I_{cu} = 25kA$ | 12.5-20   | 4547560 622106 | 4547560 622205 | 4547560 622700                                       | 4547560 622809 |
|                             | 20-32     | 4547560 622113 | 4547560 622212 | 4547560 622717                                       | 4547560 622816 |
|                             | 32-50     | 4547560 622120 | 4547560 622229 | 4547560 622724                                       | 4547560 622823 |
|                             | 40-63     | 4547560 622137 | 4547560 622236 | 4547560 622731                                       | 4547560 622830 |
|                             | 63-100    | 4547560 622144 | 4547560 622243 | 4547560 622748                                       | 4547560 622847 |
|                             | 80-125    | 4547560 622151 | 4547560 622250 | 4547560 622755                                       | 4547560 622854 |
| ZS125-NJ<br>$I_{cu} = 36kA$ | 12.5-20   | 4547560 622502 | 4547560 622601 | 4547560 623103                                       | 4547560 623202 |
|                             | 20-32     | 4547560 622519 | 4547560 622618 | 4547560 623110                                       | 4547560 623219 |
|                             | 32-50     | 4547560 622526 | 4547560 622625 | 4547560 623127                                       | 4547560 623226 |
|                             | 40-63     | 4547560 622533 | 4547560 622632 | 4547560 623134                                       | 4547560 623233 |
|                             | 63-100    | 4547560 622540 | 4547560 622649 | 4547560 623141                                       | 4547560 623240 |
|                             | 80-125    | 4547560 622557 | 4547560 622656 | 4547560 623158                                       | 4547560 623257 |
| ZS125-GJ<br>$I_{cu} = 65kA$ | 12.5-20   | 4547560 622304 | 4547560 622403 | 4547560 622908                                       | 4547560 623004 |
|                             | 20-32     | 4547560 622311 | 4547560 622410 | 4547560 622915                                       | 4547560 623011 |
|                             | 32-50     | 4547560 622328 | 4547560 622427 | 4547560 622922                                       | 4547560 623028 |
|                             | 40-63     | 4547560 622335 | 4547560 622434 | 4547560 622939                                       | 4547560 623035 |
|                             | 63-100    | 4547560 622342 | 4547560 622441 | 4547560 622946                                       | 4547560 623042 |
|                             | 80-125    | 4547560 622359 | 4547560 622458 | 4547560 622953                                       | 4547560 623059 |

## 250A FRAME CBRS



| Model                       | $I_R$ (A) | 3P             | 4P             | 3P                                                   | 4P             |
|-----------------------------|-----------|----------------|----------------|------------------------------------------------------|----------------|
|                             |           |                |                | with residual current monitor and remote trip module |                |
| ZE250-NJ<br>$I_{cu} = 25kA$ | 100-160   | 4547560 642807 | 4547560 642906 | 4547560 644009                                       | 4547560 644108 |
|                             | 160-250   | 4547560 642814 | 4547560 642913 | 4547560 644016                                       | 4547560 644115 |
|                             |           |                |                |                                                      |                |
| ZS250-NJ<br>$I_{cu} = 36kA$ | 100-160   | 4547560 643002 | 4547560 643101 | 4547560 644207                                       | 4547560 644306 |
|                             | 160-250   | 4547560 643019 | 4547560 643118 | 4547560 644214                                       | 4547560 644313 |
|                             |           |                |                |                                                      |                |
| ZS250-GJ<br>$I_{cu} = 65kA$ | 100-160   | 4547560 643200 | 4547560 643309 | 4547560 644405                                       | 4547560 644504 |
|                             | 160-250   | 4547560 643217 | 4547560 643316 | 4547560 644412                                       | 4547560 644511 |

## ACCESSORIES

Refer to "TemBreak 2, The Ultimate Safety Breaker",  
07 – I61EU for order codes for accessories



#### TERASAKI ELECTRIC CO., LTD.

Head Office: 7-2-10 Hannancho, Abenoku  
Osaka, Japan

Circuit Breaker Division: 7-2-10 Kamihigashi, Hiranoku Osaka, Japan

Telephone: 81-6-6791-9323  
Fax: 81-6-6791-9274  
Email: [int-sales@terasaki.co.jp](mailto:int-sales@terasaki.co.jp)  
<http://www.terasaki.co.jp/>

#### TERASAKI ELECTRIC (EUROPE) LTD.

80 Beardmore Way, Clydebank Industrial Estate  
Clydebank, Glasgow, G81 4HT, Scotland (UK)

Telephone: 44-141-941-1940  
Fax: 44-141-952-9246  
Email: [marketing@terasaki.co.uk](mailto:marketing@terasaki.co.uk)  
<http://www.terasaki.com/>

#### TERASAKI ITALIA S.r.l.

Via Ambrosoli, 4A-20090 Rodano, Milano, Italy

Telephone: 39-02-92278300  
Fax: 39-02-92278320  
Email: [info@terasaki.it](mailto:info@terasaki.it)  
<http://www.terasaki.it/>

#### TERASAKI ESPAÑA S.A.U.

Pol. Ind. Coll de la Manyà, Galileu Galilei, 19-21  
08403 Granollers, Barcelona, Spain

Telephone: 34-93-879-60-50  
Fax: 34-93-870-39-05  
Email: [terasaki@terasaki.es](mailto:terasaki@terasaki.es)  
<http://www.terasaki.es/>

#### TERASAKI SKANDINAVISKA AB

Fräsarvägen 32, SE-142 50 Skogås, Sweden

Telephone: 46-8-556-282-30  
Fax: 46-8-556-282-39  
Email: [info@terasaki.se](mailto:info@terasaki.se)  
<http://www.terasaki.se/>

#### TERASAKI CIRCUIT BREAKERS (S) PTE. LTD.

9 Toh Guan Road East 03-01 Alliance Building  
Singapore 608604

Telephone: 65-6425-4915  
Fax: 65-6425-4351  
Email: [tecs@pacific.net.sg](mailto:tecs@pacific.net.sg)

#### TERASAKI ELECTRIC (M) SDN, BHD.

Lot 3, Jalan 16/13D, 40000 Shah Alam, Selangor Darul  
Ehsan, Malaysia

Telephone: 60-3-5549-3820  
Fax: 60-3-5549-3960  
Email: [terasaki@terasaki.com.my](mailto:terasaki@terasaki.com.my)

#### TERASAKI DO BRASIL LTDA.

Rua Cordovil, 259-Parada De Lucas, 21250-450  
Rio De Janeiro-R.J., Brazil

Telephone: 55-21-3301-9898  
Fax: 55-21-3301-9861  
Email: [terasaki@terasaki.com.br](mailto:terasaki@terasaki.com.br)  
<http://www.terasaki.com.br>

#### TERASAKI ELECTRIC (CHINA) LTD.

72 Pacific Industrial Park, Xin Tang Zengcheng,  
Guangzhou 511340, China

Telephone: 86-20-8270-8556  
Fax: 86-20-8270-8586  
Email: [terasaki@public.guangzhou.gd.cn](mailto:terasaki@public.guangzhou.gd.cn)

#### TERASAKI ELECTRIC GROUP SHANGHAI REPRESENTATIVE OFFICE

Room No. 1405-6, Tomson Commercial Building  
710 Dong Fang Road, Pudong, Shanghai, 200122, China

Telephone: 86-21-58201611  
Fax: 86-21-58201621  
Email: [terasaki@vip.163.com](mailto:terasaki@vip.163.com)