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# SMART MOLDED CASE CIRCUIT BREAKERS



TALEMOD is a professional company in low voltage systems, integrating design, R&D, manufacturing and trading. Our main product lines include Modular DIN Rail Products, Smart Molded Case Circuit Breaker, Photovoltaic System Components and Distribution Box Series.

Optimal Solution

We are turnkey solution supplier for circuit protection. By providing quality ODM and OEM services, we expand your brand's product range and increase market share.

We Offer Reliable Support

Our team has years of combined experience in circuit protection expertise and with the help under seasoned supply chain, we have obtained CE, CB, SEMKO, RoHS and other authorities certification, and serving for some of the biggest brands worldwide.

Modern Manufacturing

We apply the modern 6S manufacturing strategy to reduce product error and increase efficiency.

Top Brand's Choice

Continued innovation, consumer-focused production, and partnerships with renowned companies like **legrand** and **hbcino** make Talemmod the go-to brand for your brand here and abroad.

Flexible Solution

Apart from devices, we offer a complete set of consumer units, offering you a combo sales plan.

Attentive Service

Our expert team help you with device design, production, development and attentive after-sales service.



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# TDK5EJ SMART METERING MCCB (METERING TYPE)



## Scope of Application

The rated insulation voltage of the molded case circuit breaker is 1000V, and it is suitable for three-phase four-wire distribution networks with AC 50Hz, rated voltage of 400V, and rated current up to 630A. It is used to provide indirect contact protection to prevent fire hazards caused by ground fault current due to equipment insulation damage. Also can be used to distribute electric energy and protect the line from overload and short circuit. It has protection functions for overvoltage, under-voltage, and phase loss of the line.

## Model and Meaning

|    |   |   |   |   |   |     |   |   |   |   |   |     |    |    |    |    |
|----|---|---|---|---|---|-----|---|---|---|---|---|-----|----|----|----|----|
| TD | K | 5 | E | J | - | 250 | M | C | Y | / | 3 | 320 | GF | ZB | TP | 3W |
| ①  | ② | ③ | ④ | ⑤ | ⑥ | ⑦   | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ | ⑬   | ⑭  | ⑮  | ⑯  | ⑰  |

| Serial No. | Item meaning                                                                                          |
|------------|-------------------------------------------------------------------------------------------------------|
| ①          | Enterprise code: TALEMOD                                                                              |
| ②          | MCCB (Molded Case Circuit Breaker)                                                                    |
| ③          | Design No.                                                                                            |
| ④          | Electronic & adjustable                                                                               |
| ⑤          | Metering type                                                                                         |
| ⑥          | Frame grade current (A): Inm=125, Inm=250, Inm=400, Inm=630                                           |
| ⑦          | Breaking capacity: S: Standard; L: Middle breaking; M: High breaking                                  |
| ⑧          | Automatic reclosing                                                                                   |
| ⑨          | LCD display                                                                                           |
| ⑩          | No. of poles: 3: three-pole; 4: four-pole                                                             |
| ⑪          | None: means no auxiliary; 320: means one group of auxiliary; 360: means two groups of auxiliary       |
| ⑫          | Photovoltaic                                                                                          |
| ⑬          | None: indicates no carrier module; ZB: indicates single-mode carrier; TB: indicates dual-mode carrier |
| ⑭          | None: indicates no topology identification; TP: indicates topology identification                     |
| ⑮          | 3W: Indicates 3-way temperature detection; 6W: Indicates 6-way temperature detection                  |

## Main Functions and Features

- ◆ High-performance 32-bit ARM microprocessor is used to carry out signal processing and intelligent control in real time;
- ◆ LCD Chinese/English display provides friendly HMI and simple operation;
- ◆ With automatic reclosing function; fast closing speed, closing time  $\leq 2s$ ;
- ◆ Long delay, short delay and instantaneous three-stage protection, electronic tripping mode is applied, which is independent of supply voltage;
- ◆ High breaking capacity could ensure the reliability of short circuit protection for the line;
- ◆ Overvoltage protection, undervoltage protection, phase loss protection and neutral wire missing protection; Protection functions and parameters can be set and modified online;
- ◆ Real-time display of three-phase power supply voltage and load current;
- ◆ Identification and display of tripping types (remote locking, overload, undervoltage, overvoltage, loss of voltage, phase loss, zero break, etc.), and storage, query and deletion;

- ◆ Supports four remote functions: remote signaling, remote measurement, remote control and remote adjustment;
- ◆ HPLC pluggable module and micro-power Bluetooth wireless communication;
- ◆ 0.05In-1.2In measurement can reach level 1.0;
- ◆ Real-time measurement of active power, reactive power, apparent power, power factor and other parameters, and accumulation of three-phase active power;
- ◆ Time control, fee control and other modes are optional, and the application is more flexible;
- ◆ Support DL/T645 protocol and Modbus protocol, and automatically identify;
- ◆ Real-time monitoring of the incoming terminal terminal block temperature (optional);
- ◆ Support online remote upgrade for easy maintenance and upgrade;
- ◆ Accuracy level: current and voltage accuracy can reach up to 0.5s level; active and reactive accuracy can reach up to level 1;
- ◆ Support active demand over-limit, reactive demand over-limit, current mutation events, current interruption, voltage harmonic content, current harmonic content, voltage waveform distortion, current waveform distortion;
- ◆ With passive island protection (optional);
- ◆ With terminal and contact over-temperature protection (optional);
- ◆ With power generation quality monitoring and protection (optional);
- ◆ With three-phase unbalanced power generation current monitoring and protection (optional).

## Main Technical Parameters

| Model                                              | TDK5E-125                                         | TDK5E-250         | TDK5E-400         | TDK5E-630         |
|----------------------------------------------------|---------------------------------------------------|-------------------|-------------------|-------------------|
| Frame grade rated current Inm (A)                  | 125                                               | 250               | 400               | 630               |
| No. of poles                                       | 3P/4P                                             |                   |                   |                   |
| Rated operating voltage Ue(V)                      | AC400/50Hz                                        |                   |                   |                   |
| Rated insulation voltage Ui(V)                     | 1000                                              |                   |                   |                   |
| Rated impulse withstand voltage Uimp(kV)           | 8                                                 |                   |                   |                   |
| Flashover distance (mm)                            | $\geq 50$                                         |                   | $\geq 100$        |                   |
| Ultimate short-circuit breaking capacity Icu (kA)  | 25(S) 36(L) 50(M)                                 | 36(S) 35(L) 50(M) | 35(S) 65(L) 70(M) | 50(S) 65(L) 70(M) |
| Operating short-circuit breaking capacity Ics (kA) | 20(S) 25(L) 35(M)                                 | 25(S) 35(L) 35(M) | 35(S) 42(L) 50(M) | 50(S) 50(L) 70(M) |
| Rated short-time withstand current Icw (kA)/s      | 1.5                                               | 3                 | 5                 | 8                 |
| Auto reclosing time (s)                            | $\leq 2s$                                         |                   |                   |                   |
| Operational performance (times)                    | Powered                                           | 1500              | 1000              | 1000              |
|                                                    | Not powered                                       | 8500              | 7000              | 4000              |
|                                                    | Total                                             | 10000             | 8000              | 5000              |
| Overload and short circuit characteristics         | Three-stage protection, electronically adjustable |                   |                   |                   |
| Overvoltage protection value (V)                   | Set value (231 ~ 330)/default value 282V          |                   |                   |                   |
| Undervoltage protection value (V)                  | Set value (88 ~ 209)/default value 187V           |                   |                   |                   |
| Phase loss protection value (V)                    | Set value (10 ~ 130)/default value 30V            |                   |                   |                   |
| Link control delay time (ms)                       | $\leq 40ms$                                       |                   |                   |                   |
| Communication delay time (ms)                      | $\leq 200ms$                                      |                   |                   |                   |

# TDK3EL SMART RESIDUAL MCCB (RECLOSING TYPE)

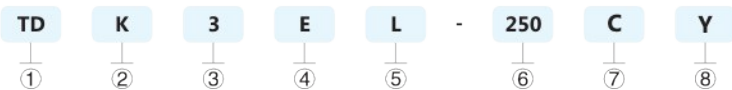


## Scope of Application

The rated insulation voltage of smart residual molded case current circuit breaker (smart reclosing type) is 1000V, which is suitable for three-phase four-wire neutral point direct grounding (TT) distribution networks with AC 50Hz, 400V rated voltage and 800A rated current. It is used to provide indirect contact protection; Prevent fire danger caused by grounding fault current due to equipment insulation damage; And it can be used to distribute electric energy and it can also be used to distribute electric energy and protect lines and power supply equipment from overload, undervoltage, short circuit, single-phase grounding and other faults.

The products conform to IEC60947-2 standard.

## Model and Meaning



| Serial No. | Item meaning                                                         |
|------------|----------------------------------------------------------------------|
| ①          | Enterprise code: TALEMOD                                             |
| ②          | MCCB (Molded Case Circuit Breaker)                                   |
| ③          | Design No.                                                           |
| ④          | Electronic & adjustable                                              |
| ⑤          | With residual current protection                                     |
| ⑥          | Frame grade current (A): Inm=125, Inm=250, Inm=400, Inm=630, Inm=800 |
| ⑦          | Automatic reclosing of leakage trip                                  |
| ⑧          | Y: LCD; S: Digital                                                   |

## Main Functions and Features

- ◆ High-performance 32-bit ARM microprocessor is used to carry out signal processing and intelligent control in real time;
- ◆ LCD Chinese/English display provides friendly HMI and simple operation;
- ◆ For residual current (leakage) protection, the residual current gear can be set online, with reclosing function;
- ◆ Monitor and track the residual current of the line in real time, and automatically adjust the gear to ensure the operation rate and reliability of the product;
- ◆ Long delay, short delay and instantaneous three-stage protection, electronic tripping mode is applied, which is independent of supply voltage;
- ◆ High breaking capacity could ensure the reliability of short circuit protection for the line;
- ◆ Overvoltage protection, undervoltage protection, phase loss protection;
- ◆ Real-time display of residual current, three-phase supply voltage and load current of the line;
- ◆ Protection functions and parameters can be set and modified online;
- ◆ Trip types (residual current, locking, overload, undervoltage, overvoltage, phase loss) can be identified & displayed, and can be stored, inquired & deleted;
- ◆ Network type has communication function, which can realize remote communication, telemetry, remote control and remote adjustment;
- ◆ Pluggable lightning protection module (optional);
- ◆ Infrared communication function (optional).

## Main Technical Parameters

| Model                                                            |             | TDK3EL-125CY<br>TDK3EL-125CS                                               | TDK3EL-250CY<br>TDK3EL-250CS | TDK3EL-400CY<br>TDK3EL-400CS | TDK3EL-630CY<br>TDK3EL-630CS                                                  | TDK3EL-800CY<br>TDK3EL-800CS |
|------------------------------------------------------------------|-------------|----------------------------------------------------------------------------|------------------------------|------------------------------|-------------------------------------------------------------------------------|------------------------------|
| Frame grade current Inm(A)                                       |             | 125                                                                        | 250                          | 400                          | 630                                                                           | 800                          |
| No. of poles                                                     |             | 3P+N                                                                       | 3P+N                         | 3P+N                         | 3P+N                                                                          | 3P+N                         |
| Rated operating voltage Ue(V)                                    |             | AC400/50Hz                                                                 |                              |                              |                                                                               |                              |
| Rated insulation voltage Ui(V)                                   |             | 1000                                                                       |                              |                              |                                                                               |                              |
| Rated impulse withstand voltage Uimp(kV)                         |             | 8                                                                          |                              |                              |                                                                               |                              |
| Flashover distance (mm)                                          |             | ≥ 50                                                                       |                              | ≥ 100                        |                                                                               |                              |
| Ultimate short-circuit breaking capacity Icu(kA)                 |             | 50                                                                         | 70(H)                        | 65                           | 85(H)                                                                         | 65                           |
| Operating short-circuit breaking capacity Ics(kA)                |             | 35                                                                         | 50(H)                        | 42                           | 65(H)                                                                         | 42                           |
| Rated residual short-circuit making (breaking) capacity IΔm (kA) |             | 12.5                                                                       | 17.5(H)                      | 16.25                        | 21.5(H)                                                                       | 16.25                        |
| Rated short-time withstand current Icw (kA)/s                    |             | 1.5                                                                        | 3                            | 5                            | 8                                                                             | 10                           |
| Residual current operating characteristics                       |             | AC type                                                                    |                              |                              |                                                                               |                              |
| Rated residual operating current IΔn (mA)                        |             | 50/100/200/300/400/500/600/800<br>MCU automatic tracking or manual setting |                              |                              | 100/200/300/400/500/600/800/<br>1000 MCU automatic tracking or manual setting |                              |
| Residual operating time characteristics                          |             | Delayed/non-delayed type                                                   |                              |                              |                                                                               |                              |
| Limit non-drive time of delayed type (s)                         |             | 0.06/0.1/0.2 Optional: 2IΔn                                                |                              |                              |                                                                               |                              |
| Breaking time (s)                                                |             | IΔn≤0.5; 2IΔn≤0.2; 5IΔn≤0.15                                               |                              |                              |                                                                               |                              |
| Auto reclosing time (s)                                          |             | 20 ~ 60                                                                    |                              |                              |                                                                               |                              |
| Operational performance (times)                                  | Powered     | 1500                                                                       | 1000                         | 1000                         |                                                                               | 500                          |
|                                                                  | Not powered | 8500                                                                       | 7000                         | 4000                         |                                                                               | 2500                         |
|                                                                  | Total       | 10000                                                                      | 8000                         | 5000                         |                                                                               | 3000                         |
| Overload and short circuit characteristics                       |             | Three-stage protection, electronically adjustable                          |                              |                              |                                                                               |                              |
| Overvoltage protection value (V)                                 |             | Set value (250 ~ 300) ± 5%                                                 |                              |                              |                                                                               |                              |
| Undervoltage protection value (V)                                |             | Set value (145 ~ 200) ± 5%                                                 |                              |                              |                                                                               |                              |
| Link control delay time (ms)                                     |             | ≤40ms                                                                      |                              |                              |                                                                               |                              |
| Communication delay time (ms)                                    |             | ≤200ms                                                                     |                              |                              |                                                                               |                              |



# TDK5EL SMART RESIDUAL MCCB (RECLOSING TYPE)

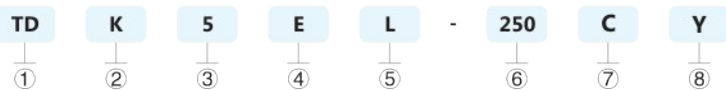


## Scope of Application

The rated insulation voltage of smart residual molded case circuit breaker (smart reclosing type) is 1000V, which is suitable for three-phase four-wire neutral point direct grounding (TT) distribution networks with AC 50Hz, 400V rated voltage and 630A rated current. It is used to provide indirect contact protection; Prevent fire danger caused by grounding fault current due to equipment insulation damage; And it can be used to distribute electric energy and it can also be used to distribute electric energy and protect lines and power supply equipment from overload, undervoltage, short circuit, single-phase grounding and other faults.

The products conform to IEC60947-2 standard.

## Model and Meaning



| Serial No. | Item meaning                                                |
|------------|-------------------------------------------------------------|
| ①          | Enterprise code: TALEMOD                                    |
| ②          | MCCB (Molded Case Circuit Breaker)                          |
| ③          | Design No.                                                  |
| ④          | Electronic & adjustable                                     |
| ⑤          | With residual current protection                            |
| ⑥          | Frame grade current (A): Inm=125, Inm=250, Inm=400, Inm=630 |
| ⑦          | Automatic reclosing of leakage trip                         |
| ⑧          | Y: LCD; S: Digital                                          |

## Main Functions and Features

- ◆ High-performance 32-bit ARM microprocessor is used to carry out signal processing and intelligent control in real time;
- ◆ LCD Chinese/English display provides friendly HMI and simple operation;
- ◆ For residual current (leakage) protection, the residual current gear can be set online, with reclosing function;
- ◆ Monitor and track the residual current of the line in real time, and automatically adjust the gear to ensure the operation rate and reliability of the product;
- ◆ Long delay, short delay and instantaneous three-stage protection, electronic tripping mode is applied, which is independent of supply voltage;
- ◆ High breaking capacity could ensure the reliability of short circuit protection for the line;
- ◆ Overvoltage protection, undervoltage protection, phase loss protection;
- ◆ Real-time display of residual current, three-phase supply voltage and load current of the line;
- ◆ Protection functions and parameters can be set and modified online;
- ◆ Trip types (residual current, locking, overload, undervoltage, overvoltage, phase loss) can be identified & displayed, and can be stored, inquired & deleted;
- ◆ Network type has communication function, which can realize remote communication, telemetry, remote control and remote adjustment;
- ◆ Pluggable lightning protection module (optional);
- ◆ Infrared communication function (optional).

## Main Technical Parameters

| Model                                                            |             | TDK5EL-125CY<br>TDK5EL-125CS                                               | TDK5EL-250CY<br>TDK5EL-250CS | TDK5EL-400CY<br>TDK5EL-400CS | TDK5EL-630CY<br>TDK5EL-630CS                                                  |
|------------------------------------------------------------------|-------------|----------------------------------------------------------------------------|------------------------------|------------------------------|-------------------------------------------------------------------------------|
| Frame grade current Inm(A)                                       |             | 125                                                                        | 250                          | 400                          | 630                                                                           |
| No. of poles                                                     |             | 3P+N                                                                       | 3P+N                         | 3P+N                         | 3P+N                                                                          |
| Rated operating voltage Ue(V)                                    |             | AC400/50Hz                                                                 |                              |                              |                                                                               |
| Rated insulation voltage Ui(V)                                   |             | 800                                                                        |                              | 1000                         |                                                                               |
| Rated impulse withstand voltage Uimp(kV)                         |             | 8                                                                          |                              |                              |                                                                               |
| Flashover distance (mm)                                          |             | ≥ 50                                                                       |                              | ≥ 100                        |                                                                               |
| Ultimate short-circuit breaking capacity Icu(kA)                 |             | 50                                                                         |                              | 65                           | 85                                                                            |
| Operating short-circuit breaking capacity Ics(kA)                |             | 35                                                                         |                              | 42                           | 65                                                                            |
| Rated residual short-circuit making (breaking) capacity IΔm (kA) |             | 12.5                                                                       |                              | 16.25                        | 21.25                                                                         |
| Rated short-time withstand current Icw (kA)/s                    |             | 1.5                                                                        | 3                            | 5                            | 8                                                                             |
| Residual current operating characteristics                       |             | AC type                                                                    |                              |                              |                                                                               |
| Rated residual operating current IΔn (mA)                        |             | 50/100/200/300/400/500/600/800<br>MCU automatic tracking or manual setting |                              |                              | 100/200/300/400/500/600/800/<br>1000 MCU automatic tracking or manual setting |
| Residual operating time characteristics                          |             | Delayed/non-delayed type                                                   |                              |                              |                                                                               |
| Limit non-drive time of delayed type (s)                         |             | 0.06: 2IΔn                                                                 |                              |                              |                                                                               |
| Breaking time (s)                                                |             | IΔn≤0.5; 2IΔn≤0.2; 5IΔn≤0.15                                               |                              |                              |                                                                               |
| Auto reclosing time (s)                                          |             | 20 ~ 60                                                                    |                              |                              |                                                                               |
| Operational performance (times)                                  | Powered     | 1500                                                                       | 1000                         | 1000                         |                                                                               |
|                                                                  | Not powered | 8500                                                                       | 7000                         | 4000                         |                                                                               |
|                                                                  | Total       | 10000                                                                      | 8000                         | 5000                         |                                                                               |
| Overload and short circuit characteristics                       |             | Three-stage protection, electronically adjustable                          |                              |                              |                                                                               |
| Overvoltage protection value (V)                                 |             | Set value (250 ~ 300) ± 5%                                                 |                              |                              |                                                                               |
| Undervoltage protection value (V)                                |             | Set value (145 ~ 200) ± 5%                                                 |                              |                              |                                                                               |
| Link control delay time (ms)                                     |             | ≤40ms                                                                      |                              |                              |                                                                               |
| Communication delay time (ms)                                    |             | ≤200ms                                                                     |                              |                              |                                                                               |

# TDK3ELJ SMART RESIDUAL MCCB (METERING TYPE)

## Model and Meaning



| Serial No. | Item meaning                                                                                                                 |
|------------|------------------------------------------------------------------------------------------------------------------------------|
| ①          | Enterprise code: TALEMOD                                                                                                     |
| ②          | MCCB (Molded Case Circuit Breaker)                                                                                           |
| ③          | Design No.                                                                                                                   |
| ④          | Electronic & adjustable                                                                                                      |
| ⑤          | With residual current protection                                                                                             |
| ⑥          | J: Metering type                                                                                                             |
| ⑦          | Frame grade current (A): Inm=125, Inm=250, Inm=400, Inm=630, Inm=800<br>(Note: Model 800 does not have neutral wire on left) |
| ⑧          | Automatic reclosing of leakage trip                                                                                          |
| ⑨          | Y: LCD                                                                                                                       |
| ⑩          | Z: Neutral wire on left; N/A: Neutral wire on right                                                                          |
| ⑪          | Standard type                                                                                                                |

## Main Functions and Features

- ◆ High-performance 32-bit ARM microprocessor is used to carry out signal processing and intelligent control in real time;
- ◆ LCD Chinese/English display provides friendly HMI and simple operation;
- ◆ For residual current (leakage) protection, the residual current gear can be set online, with reclosing function;
- ◆ Monitor and track the residual current of the line in real time, and automatically adjust the gear to ensure the operation rate and reliability of the product;
- ◆ Long delay, short delay and instantaneous three-stage protection, electronic tripping mode is applied, which is independent of supply voltage;
- ◆ High breaking capacity could ensure the reliability of short circuit protection for the line;
- ◆ Overvoltage protection, undervoltage protection, phase loss protection and neutral wire missing protection; Protection functions and parameters can be set and modified online;
- ◆ Real-time display of line residual current, three-phase supply voltage and load current; Real-time measurement of parameters such as active power, reactive power, apparent power & power factor;
- ◆ Trip types (residual current, locking, overload, undervoltage, overvoltage, phase loss, fault neutral line) can be identified & displayed, and can be stored, inquired & deleted;
- ◆ Functions of remote communication, telemetry, remote control and remote adjustment are supported;
- ◆ HPLC pluggable module and micro-power Bluetooth wireless communication;
- ◆ 0.05In-1.2In metering can reach level 1.0; Real-time monitoring of the temperature of the incoming connector bar (optional);
- ◆ Accumulation of three-phase active power; Modes such as time control & cost control are optional, and the application is more flexible;
- ◆ Support DL/T645 protocol and Modbus protocol, and automatic identification is achieved; Support online remote upgrade, which is convenient for maintenance and upgrade;
- ◆ Accuracy grade: The highest accuracy of current and voltage can reach 0.5s; The accuracy of active and reactive power can reach level 1, and the residual current can reach level 2.

## Main Technical Parameters

| Model                                                             |             | TDK3ELJ-125                                       | TDK3ELJ-250 | TDK3ELJ-400<br>TDK3ELJ-630                  | TDK3ELJ-630 | TDK3ELJ-800 |
|-------------------------------------------------------------------|-------------|---------------------------------------------------|-------------|---------------------------------------------|-------------|-------------|
| Frame grade current Inm(A)                                        |             | 125                                               | 250         | 400, 630                                    | 630         | 800         |
| No. of poles                                                      |             | 3P+N                                              |             |                                             |             |             |
| Rated operating voltage Ue(V)                                     |             | AC400/50Hz                                        |             |                                             |             |             |
| Rated insulation voltage Ui(V)                                    |             | 1000                                              |             |                                             |             |             |
| Rated impulse withstand voltage Uimp(kV)                          |             | 8                                                 |             |                                             |             |             |
| Flashover distance (mm)                                           |             | ≥ 50                                              |             | ≥ 100                                       |             |             |
| Ultimate short-circuit breaking capacity Icu(kA)                  |             | 50                                                | 70(H)       | 65                                          | 85(H)       | 65 85(H)    |
| Operating short-circuit breaking capacity Ics(kA)                 |             | 35                                                | 50(H)       | 42                                          | 55(H)       | 50 65(H)    |
| Rated residual short-circuit making (breaking) capacity IΔ m (kA) |             | 12.5                                              | 17.5(H)     | 16.25 21.25(H)                              |             |             |
| Rated short-time withstand current Icw (kA)/s                     |             | 3                                                 |             | 400: 5<br>630: 8                            | 8           | 10          |
| Residual current operating characteristics                        |             | AC type                                           |             |                                             |             |             |
| Rated residual operating current IΔ n (mA)                        |             | 30/50/75/100/200/300/500/<br>600/800/Auto         |             | 30/50/100/200/300/400/500/600/800/1000/Auto |             |             |
| Residual operating time characteristics                           |             | Delayed/non-delayed type                          |             |                                             |             |             |
| Limit non-drive time of delayed type (s)                          |             | 0.06/0.1/0.2 Optional: 2IΔ n                      |             |                                             |             |             |
| Breaking time (s)                                                 |             | IΔ n≤0.5; 2IΔ n≤0.2; 5IΔ n≤0.15                   |             |                                             |             |             |
| Auto re-closing time (s)                                          |             | 20 ~ 60                                           |             |                                             |             |             |
| Operational performance (times)                                   | Powered     | 1000                                              |             | 1000                                        |             | 500         |
|                                                                   | Not powered | 7000                                              |             | 4000                                        |             | 2500        |
|                                                                   | Total       | 8000                                              |             | 5000                                        |             | 3000        |
| Overload and short circuit characteristics                        |             | Three-stage protection, electronically adjustable |             |                                             |             |             |
| Overvoltage protection value (V)                                  |             | Set value (231 ~ 330)/default value 275V          |             |                                             |             |             |
| Undervoltage protection value (V)                                 |             | Set value (88 ~ 209)/default value 145V           |             |                                             |             |             |
| Phase loss protection value (V)                                   |             | Set value (10 ~ 130)/default value 30V            |             |                                             |             |             |
| Link control delay time (ms)                                      |             | ≤40ms                                             |             |                                             |             |             |
| Communication delay time (ms)                                     |             | ≤200ms                                            |             |                                             |             |             |

## Measuring Accuracy Grade

| Accuracy                  | Allowable error            |
|---------------------------|----------------------------|
| Current accuracy          | ± 0.5%, ± 1.0%             |
| Voltage accuracy          | ± 0.5%, ± 1.0%             |
| Active power accuracy     | ± 1.0%, ± 1.5%, 2.0%, 2.5% |
| Reactive power accuracy   | ± 1.0%, ± 1.5%, 2.0%, 2.5% |
| Residual current accuracy | ± 1.0%, ± 2.0%             |



# TDK3ELG SMART RESIDUAL MCCB (PHOTOVOLTAIC TYPE)



## Model and Meaning

|    |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|-----|---|---|---|---|---|---|---|---|
| TD | K | 3 | E | L | G | - | 125 | C | Y | / | □ | / | □ | / | □ |
| ①  | ② | ③ | ④ | ⑤ | ⑥ |   | ⑦   | ⑧ | ⑨ |   | ⑩ |   | ⑪ |   | ⑫ |

| Serial No. | Item meaning                                                         |
|------------|----------------------------------------------------------------------|
| ①          | Enterprise code: TALEMOD                                             |
| ②          | MCCB (Molded Case Circuit Breaker)                                   |
| ③          | Design No.                                                           |
| ④          | Electronic                                                           |
| ⑤          | With residual current protection                                     |
| ⑥          | G: Photovoltaic type                                                 |
| ⑦          | Frame grade current (A): Inm=125, Inm=250, Inm=400, Inm=630, Inm=800 |
| ⑧          | Automatic reclosing                                                  |
| ⑨          | Y: LCD; B: Bluetooth                                                 |
| ⑩          | Accessory code                                                       |
| ⑪          | ZB: Carrier module                                                   |
| ⑫          | W: Temperature detection                                             |

## Main Functions and Features

- ◆ High-performance 32-bit ARM microprocessor is used to carry out signal processing and intelligent control in real time;
- ◆ LCD Chinese/English display provides friendly HMI and simple operation;
- ◆ For residual current (leakage) protection, the residual current gear can be set online, with reclosing function;
- ◆ Monitor and track the residual current of the line in real time, and automatically adjust the gear to ensure the operation rate and reliability of the product;
- ◆ Long delay, short delay and instantaneous three-stage protection, electronic tripping mode is applied, which is independent of supply voltage;
- ◆ High breaking capacity could ensure the reliability of short circuit protection for the line;
- ◆ Overvoltage protection, undervoltage protection, phase loss protection and neutral wire missing protection;
- ◆ Real-time display of residual current, three-phase supply voltage and load current of the line;
- ◆ Protection functions and parameters can be set and modified online;
- ◆ Trip types (residual current, locking, overload, undervoltage, overvoltage, voltage loss, phase loss, fault neutral line) can be identified & displayed, and can be stored, inquired & deleted;
- ◆ Functions of remote communication, telemetry, remote control and remote adjustment are supported;
- ◆ HPLC pluggable module and micro-power Bluetooth wireless communication;
- ◆ 0.05In-1.2In measurement can reach level 1.0;
- ◆ Real-time measurement of parameters such as active power, reactive power, apparent power & power factor;
- ◆ Accumulation of three-phase active power;
- ◆ Modes such as time control & cost control are optional, and the application is more flexible;
- ◆ Support DL/T645 protocol and Modbus protocol, and automatic identification is achieved;
- ◆ Real-time monitoring of the temperature of the incoming connector bar (optional);
- ◆ Support online remote upgrade, which is convenient for maintenance and upgrade;
- ◆ Accuracy grade: The highest accuracy of current and voltage can reach 0.5s; The accuracy of active and reactive power can reach level 1, and the residual current can reach level 2;
- ◆ Active power demand overrun, reactive power demand overrun, current mutation event, cut-off, voltage harmonic content, current harmonic content, voltage waveform distortion, current waveform distortion and island protection are supported;
- ◆ Passive island protection;
- ◆ Overheat protection of terminal and contact;
- ◆ Power generation quality monitoring and protection;
- ◆ Three-phase unbalance monitoring and protection of power generation current.

## Main Technical Parameters

| Model                                                            |             | TDK3ELG-125                                       | TDK3ELG-250  | TDK3ELG-400<br>TDK3ELG-630 | TDK3ELG-630 | TDK3ELG-800 |
|------------------------------------------------------------------|-------------|---------------------------------------------------|--------------|----------------------------|-------------|-------------|
| Frame grade current Inm(A)                                       |             | 125                                               | 250          | 400, 630                   | 630         | 800         |
| No. of poles                                                     |             | 3P+N                                              |              |                            |             |             |
| Rated operating voltage Ue(V)                                    |             | AC400/50Hz                                        |              |                            |             |             |
| Rated insulation voltage Ui(V)                                   |             | 1000                                              |              |                            |             |             |
| Rated impulse withstand voltage Uimp(kV)                         |             | 8                                                 |              |                            |             |             |
| Flashover distance (mm)                                          |             | ≥ 50                                              |              | ≥ 100                      |             |             |
| Ultimate short-circuit breaking capacity Icu(kA)                 |             | 25 35(H)                                          | 50 70(H)     | 65 85(H)                   | 65 85(H)    | 65 85(H)    |
| Operating short-circuit breaking capacity Ics(kA)                |             | 17.5 22(H)                                        | 35 50(H)     | 42 55(H)                   | 50 65(H)    | 42 55(H)    |
| Rated residual short-circuit making (breaking) capacity IΔm (kA) |             | 6.25 8.75(H)                                      | 12.5 17.5(H) | 16.25 21.25(H)             |             |             |
| Rated short-time withstand current Icw (kA)/s                    |             | 3                                                 |              | 400: 5<br>630: 8           | 8           | 10          |
| Residual current operating characteristics                       |             | AC type                                           |              |                            |             |             |
| Rated residual operating current IΔn (mA)                        |             | 30~1000/Auto                                      |              |                            |             |             |
| Residual operating time characteristics                          |             | Delayed/non-delayed type                          |              |                            |             |             |
| Limit non-drive time of delayed type (s)                         |             | 0.1~0.5                                           |              |                            |             |             |
| Operational performance (times)                                  | Powered     | 1000                                              |              | 1000                       |             | 500         |
|                                                                  | Not powered | 7000                                              |              | 4000                       |             | 2500        |
|                                                                  | Total       | 8000                                              |              | 5000                       |             | 3000        |
| Overload and short circuit characteristics                       |             | Three-stage protection, electronically adjustable |              |                            |             |             |
| Overvoltage protection value (V)                                 |             | Set value (231 ~ 330)/default value 282V          |              |                            |             |             |
| Undervoltage protection value (V)                                |             | Set value (88 ~ 209)/default value 187V           |              |                            |             |             |
| Phase loss protection value (V)                                  |             | Set value (10 ~ 130)/default value 30V            |              |                            |             |             |

# TDK1 THERMAL MAGNETIC MCCB



## Scope of Application

TDK1 series molded case circuit breaker is used for AC 50/60Hz, rated working voltage of 400V, rated insulation voltage of 800V for type 63 and 1000V for type 125-800, rated working current up to 800A.

Used for frequent conversion in circuit and infrequent starting of motor.

Comply with IEC60947-2 standard.

With overload, short circuit and undervoltage protection functions.

With the features of compact structure, small volume, high breaking capacity and zero flashover.

High breaking capacity: up to 65kA.

Reasonable design, safe and reliable, beautiful appearance.

All accessories are available, easy to install, convenient to use, and highly adaptable.

The whole series of circuit breakers has isolation function, and its symbol is:

## Model and Meaning

|    |   |   |   |     |   |   |   |   |     |   |   |     |                   |                   |
|----|---|---|---|-----|---|---|---|---|-----|---|---|-----|-------------------|-------------------|
| TD | K | 1 | - | 125 | L | P | / | 3 | 300 | 2 | B | 63A | Installation mode | Other accessories |
| ①  | ② | ③ | ④ | ⑤   | ⑥ | ⑦ | ⑧ | ⑨ | ⑩   | ⑪ | ⑫ | ⑬   |                   |                   |

| Serial No. | Item meaning                                                                                                                               |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| ①          | Enterprise code: TALEMOD                                                                                                                   |
| ②          | MCCB (Molded Case Circuit Breaker)                                                                                                         |
| ③          | Design No.                                                                                                                                 |
| ④          | Frame grade current (A) optional code:<br>Inm=63, Inm=125, Inm=250, Inm=400, Inm=630, Inm=800                                              |
| ⑤          | Ultimate short-circuit breaking capacity:<br>L: Standard (25, 35, 50kA); M: High breaking (50, 65kA)                                       |
| ⑥          | Operation mode:<br>P: Electric operation; Z: Operate by rotating handle                                                                    |
| ⑦          | No. of poles: 2: two-pole; 3: three-pole; 4: four-pole                                                                                     |
| ⑧          | Release mode and optional codes for internal accessories                                                                                   |
| ⑨          | Optional codes for different purposes: No code: For power distribution, 2: For motor protection, Th: For "three-prevention" occasions      |
| ⑩          | 4-pole product code                                                                                                                        |
| ⑪          | Rated current                                                                                                                              |
| ⑫          | Installation modes are optional: Front wiring of board; Rear wiring of board; Plug-in wiring; Special mode(negotiated by user and factory) |
| ⑬          | Other accessories are optional: Mechanical interlocking between two circuit breakers                                                       |

**Note:** 4-pole product code

- ◆ Type A: Overcurrent tripping element is not installed at N pole, and N pole is always ON and not combined with other three poles
- ◆ Type B: Overcurrent tripping element is not installed at N pole, and N pole is combined with other three poles.
- ◆ Type C: Overcurrent tripping element is not installed at N pole, and N pole is combined with other three poles.
- ◆ Type D: Overcurrent tripping element is not installed at N pole, and N pole is always ON and not combined with other three poles

## Main Technical Parameters

| Model                                             | TDK1-63                        | TDK1-125                                 | TDK1-250                               | TDK1-400                | TDK1-630      | TDK1-800      |
|---------------------------------------------------|--------------------------------|------------------------------------------|----------------------------------------|-------------------------|---------------|---------------|
| Frame grade current Inm(A)                        | 63                             | 125                                      | 250                                    | 400                     | 630           | 800           |
| Rated current In(A)                               | 10, 16, 20, 25, 32, 40, 50, 63 | 16, 20, 25, 32, 40, 50, 63, 80, 100, 125 | 100, 125, 140, 160, 180, 200, 225, 250 | 225, 250, 315, 350, 400 | 400, 500, 630 | 630, 700, 800 |
| No. of poles                                      | 3 4                            | 3 4                                      | 3 4                                    | 3 4                     | 3 4           | 3 4           |
| Rated insulation voltage Ui(V)                    | 800                            | 1000                                     |                                        |                         |               |               |
| Rated operating voltage Ue(V)                     | AC400                          | AC400, AC690                             |                                        |                         |               |               |
| Rated impulse withstand voltage Uimp(kV)          | 8                              | 12                                       |                                        |                         |               |               |
| Flashover distance (mm)                           | 50                             |                                          |                                        |                         | 100           |               |
| Breaking capacity level                           | L M                            | L M                                      | L M                                    | L M                     | L M           | L M           |
| Ultimate short-circuit breaking capacity Icu(kA)  | AC690V                         |                                          | 20                                     | 20                      | 20            | 30            |
|                                                   | AC400V                         | 25 50                                    | 35 50                                  | 35 50                   | 50 65 100     | 50 65 50 75   |
| Operating short-circuit breaking capacity Ics(kA) | AC690V                         |                                          | 15                                     | 15                      | 15            | 20            |
|                                                   | AC400V                         | 18 35                                    | 22 35                                  | 22 35                   | 35 42 65      | 35 42 35 50   |
| Operational performance (times)                   | Powered                        | 1500                                     | 1500                                   | 1000                    | 1000          | 500           |
|                                                   | Not powered                    | 8500                                     | 8500                                   | 7000                    | 4000          | 2500          |
|                                                   | Total                          | 10000                                    | 10000                                  | 8000                    | 5000          | 3000          |

## Protection Features

The thermal release of circuit breaker has inverse time limit feature; The electromagnetic release is instantaneous operating, and the features are shown in Table 3 (for power distribution) and Table 4 (for motor protection).

| Rated current (A) | Thermal release (ambient temperature For land +40°C For ship +45°C) |                                 | Operating current of electromagnetic release(A) |
|-------------------|---------------------------------------------------------------------|---------------------------------|-------------------------------------------------|
|                   | 1.05 In (cold) non-operating time (h)                               | 1.30In (hot) operating time (h) |                                                 |
| 110≤In≤63         | ≥1                                                                  | <1                              | 10In±20%                                        |
| 63<In≤100         | ≥2                                                                  | <2                              |                                                 |
| 100<In≤800        | ≥2                                                                  | <2                              | 51n±20%, 10In±20%                               |

| Rated current (A) | Thermal release (ambient temperature For land +40°C For ship +45°C) |                                |                                |                                 | Operating current of electromagnetic release (A) |
|-------------------|---------------------------------------------------------------------|--------------------------------|--------------------------------|---------------------------------|--------------------------------------------------|
|                   | 1.0In (cold) non-operating time (h)                                 | 1.2In (hot) operating time (h) | 1.5In (hot) operating time (h) | 7.2In (cold) operating time (h) |                                                  |
| 10≤In≤225         | ≥2                                                                  | <2                             | <4min                          | 4s<Tp≤10s                       | 12In ± 20%                                       |
| 225<In≤630        |                                                                     |                                | <8min                          | 6s<Tp≤20s                       |                                                  |



# TDK2 THERMAL MAGNETIC MCCB



## Scope of Application

TDK2 series molded case circuit breaker (hereinafter referred to as circuit breaker) with rated insulation voltage of 1000V is suitable for infrequent switching and infrequent starting of motor in circuits with frequency of 50Hz AC, rated working voltage of 690V and below, and rated working current of 800A(TDK2-800 without protection motor). The circuit breaker has the functions of overload, short circuit and undervoltage protection, which can protect the circuit and power supply equipment from damage. Three adjustable delay functions are added to the product, which are  $0.8 \times I_n$ ,  $0.9 \times I_n$ ,  $1.0 \times I_n$  respectively.

Circuit breaker can be installed vertically (i.e. vertically) or horizontally (i.e. transversely).

Circuit breaker has isolation function, and its corresponding symbol is:

Circuit breaker products comply with the following standards:

IEC60947-1 General

IEC60947-2 Low Voltage Circuit Breaker

IEC60947-4-1 Electromechanical Contactors and Motor Starters

IEC60947-5-1 Electromechanical Control Circuit Electrical Appliance

## Model and Meaning

|    |   |   |   |     |   |   |   |   |     |   |     |   |                   |                   |
|----|---|---|---|-----|---|---|---|---|-----|---|-----|---|-------------------|-------------------|
| TD | K | 2 | - | 125 | M | Z | / | 3 | 300 | 2 | 80A | B | Installation mode | Other accessories |
| ①  | ② | ③ | ④ | ⑤   | ⑥ | ⑦ | ⑧ | ⑨ | ⑩   | ⑪ | ⑫   | ⑬ |                   |                   |

| Serial No. | Item meaning                                                                                                                                  |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| ①          | Enterprise code: TALEMOD                                                                                                                      |
| ②          | MCCB (Molded Case Circuit Breaker)                                                                                                            |
| ③          | Design No.                                                                                                                                    |
| ④          | Frame grade current (A) optional code:<br>Inm=63, Inm=125, Inm=250, Inm=400, Inm=630, Inm=800                                                 |
| ⑤          | Ultimate short-circuit breaking capacity:<br>L: Standard; M: Middle breaking; H: High breaking                                                |
| ⑥          | Operating mode: Manual direct operation: no code; Z: Operate by rotating handle;<br>P: Electric operation                                     |
| ⑦          | No.of poles: 3: three-pole; 4: four-pole                                                                                                      |
| ⑧          | Release mode and accessory code                                                                                                               |
| ⑨          | Code:<br>For distribution: no code; 2: For motor protection                                                                                   |
| ⑩          | Rated current(See Technical Parameters in Table)                                                                                              |
| ⑪          | 4-pole product code; 3-pole product no code                                                                                                   |
| ⑫          | Installation modes are optional: Front wiring of board; Rear wiring of board; Plug-in wiring;<br>Special mode(negotiated by user and factory) |
| ⑬          | Other accessories are optional: Mechanical interlocking between two circuit breakers                                                          |

**Note:** 4-pole product code

- ◆ Type A: Overcurrent tripping element is not installed at N pole, and N pole is always ON and not combined with other three poles.
- ◆ Type B: Overcurrent tripping element is not installed at N pole, and N pole is combined with other three poles (N pole is combined first and then separated).
- ◆ Type C: Overcurrent tripping element is installed at N pole, and N pole is combined with other three poles (N pole is combined first and then separated).
- ◆ Type D: Overcurrent tripping element is installed at N pole, and N pole is always ON and not combined with other three poles.

## Main Technical Parameters

| Model                                             | TDK2-63                        | TDK2-125                                 | TDK2-250                               | TDK2-400                | TDK2-630      | TDK2-800      |
|---------------------------------------------------|--------------------------------|------------------------------------------|----------------------------------------|-------------------------|---------------|---------------|
| Frame grade current Inm(A)                        | 63                             | 125                                      | 250                                    | 400                     | 630           | 800           |
| Rated current In(A)                               | 10, 16, 20, 25, 32, 40, 50, 63 | 16, 20, 25, 32, 40, 50, 63, 80, 100, 125 | 100, 125, 140, 160, 180, 200, 225, 250 | 225, 250, 315, 350, 400 | 400, 500, 630 | 630, 700, 800 |
| No. of poles                                      | 3 4                            | 3 4                                      | 3 4                                    | 3 4                     | 3 4           | 3 4           |
| Rated insulation voltage Ui(V)                    | 800                            |                                          | 1000                                   |                         |               |               |
| Rated operating voltage Ue(V)                     | AC400                          |                                          |                                        | AC400, AC690            |               |               |
| Rated impulse withstand voltage Uimp(kV)          | 8                              |                                          |                                        | 12                      |               |               |
| Flashover distance (mm)                           | 50                             |                                          |                                        | 100                     |               |               |
| Breaking capacity level                           |                                | L M H                                    | L M H                                  | M H                     | M H           | M H           |
| Ultimate short-circuit breaking capacity Icu(kA)  | AC690V                         |                                          |                                        |                         |               |               |
|                                                   | AC400V                         | 25                                       | 50 70 100                              | 50 70 100               | 70 100 70 100 | 75 100        |
| Operating short-circuit breaking capacity Ics(kA) | AC690V                         |                                          |                                        |                         |               |               |
|                                                   | AC400V                         | 18                                       | 35 50 70                               | 35 50 70                | 70 75 70 75   | 75 75         |
| Operational performance (times)                   | Powered                        | 1500                                     | 1500                                   | 1000                    | 1000          | 500           |
|                                                   | Not powered                    | 8500                                     | 8500                                   | 7000                    | 4000          | 2500          |
|                                                   | Total                          | 10000                                    | 10000                                  | 8000                    | 5000          | 3000          |

## Protection Characteristics

### For power distribution

| Rated current (A) | Thermal release (ambient temperature +40°C) |                                | Operating current of electromagnetic release (A) |
|-------------------|---------------------------------------------|--------------------------------|--------------------------------------------------|
|                   | 1.05In (cold) non-operating time (h)        | 1.3In (hot) operating time (h) |                                                  |
| 10≤In≤63          | Non-operating within 1 hour                 | ≤1                             | 10In ± 20%                                       |
| 63<In≤100         | Non-operating within 2 hours                | ≤2                             |                                                  |
| 100<In≤800        | Non-operating within 2 hours                | ≤2                             | 5In ± 20%, 10In ± 20%                            |

### For protecting motors

| Circuit breaker model                                           | Thermal release (ambient temperature +40°C) |                                |                                |                                 |                | Operating current of electromagnetic release (A) |
|-----------------------------------------------------------------|---------------------------------------------|--------------------------------|--------------------------------|---------------------------------|----------------|--------------------------------------------------|
|                                                                 | 1.0In (cold) non-operating time (h)         | 1.2In (hot) operating time (h) | 1.5In (hot) operating time (h) | 7.2In (cold) operating time (h) | Tripping level |                                                  |
| TDK2-63L, M, H                                                  | Non-operating within 2 hours                | ≤2                             | ≤2min                          | 0.5s<Tp≤5s                      | 5              | 12In ± 20%                                       |
| TDK2-125L, M, H                                                 |                                             |                                | ≤4min                          | 4s<Tp≤10s                       | 10             |                                                  |
| TDK2-250L, M, H<br>TDK2-400M, H<br>TDK2-630M, H<br>TDK2-800M, H |                                             |                                | ≤8min                          | 6s<Tp≤20s                       | 20             |                                                  |

**Note:** The operating current value of 10 ~ 25A electromagnetic trip of TDK2-63 L, M is 300A±20%.

# TDK5 THERMAL MAGNETIC MCCB



## Scope of Application

TDK5 series molded case circuit breaker (hereinafter referred to as circuit breaker) with rated insulation voltage of 1000V is suitable for infrequent switching and infrequent starting of motor in circuits with frequency of AC 50Hz, rated working voltage of 415V and rated working current of 800A. The circuit breaker has the functions of overload, short circuit and undervoltage protection, which can protect the circuit and power supply equipment from damage.

Circuit breaker can be installed vertically (i.e. vertically) or horizontally (i.e. transversely).

Circuit breaker has isolation function, and their corresponding symbols are:

Circuit breaker products shall comply with the following standards:

IEC60947-1 General

IEC60947-2 Low Voltage Circuit Breaker

IEC60947-4-1 Electromechanical Contactors and Motor Starters

IEC60947-5-1 Electromechanical Control Circuit Electrical Appliance

## Model and Meaning

|    |   |   |   |     |   |   |   |   |   |   |     |   |
|----|---|---|---|-----|---|---|---|---|---|---|-----|---|
| TD | K | 5 | - | 125 | i | M | S | Z | / | 4 | 300 | B |
| ①  | ② | ③ | ④ | ⑤   | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ |     |   |

| Serial No. | Item meaning                                                                                              |
|------------|-----------------------------------------------------------------------------------------------------------|
| ①          | Enterprise code: TALEMOD                                                                                  |
| ②          | MCCB (Molded Case Circuit Breaker)                                                                        |
| ③          | Design No.                                                                                                |
| ④          | Frame grade current (A): Inm=63, Inm=100, Inm=125i, Inm=125, Inm=160, Inm=250, Inm=400, Inm=630i, Inm=800 |
| ⑤          | i: Capacity expansion current ; Conventional no code                                                      |
| ⑥          | Breaking capacity: C: Low breaking; S: Ordinary breaking; L: Middle breaking; M: High breaking            |
| ⑦          | Surface cover type: S: Single-cap; Double-cap no code                                                     |
| ⑧          | Operating mode: Manual direct operation: no code; Z: Operate by rotating handle; P: Electric operation    |
| ⑨          | No. of poles: 3: three-pole; 4: four-pole                                                                 |
| ⑩          | Release mode and accessory code                                                                           |
| ⑪          | 4-pole product code; 3-pole product no code                                                               |

**Note:** 4-pole product code

- ◆ Type A: Overcurrent tripping element is not installed at N pole, and N pole is always ON and not combined with other three poles.
- ◆ Type B: Overcurrent tripping element is not installed at N pole, and N pole is combined with other three poles (N pole is combined first and then separated).

## Main Technical Parameters

| Model                                             | TDK5-63<br>TDK5-100<br>TDK5-125i             |    |       |    | TDK5-125<br>TDK5-160                               |      |       |    | TDK5-250                               |    |      |    | TDK5-400<br>TDK5-630i             |    |      |    | TDK5-800      |    |      |    |  |  |
|---------------------------------------------------|----------------------------------------------|----|-------|----|----------------------------------------------------|------|-------|----|----------------------------------------|----|------|----|-----------------------------------|----|------|----|---------------|----|------|----|--|--|
| Frame grade current Inm(A)                        | 63, 100, 125i                                |    |       |    | 125, 160                                           |      |       |    | 250                                    |    |      |    | 400, 630i                         |    |      |    | 800           |    |      |    |  |  |
| Rated current In(A)                               | 10, 16, 20, 25, 32, 40, 50, 63, 80, 100, 125 |    |       |    | 16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 140, 160 |      |       |    | 100, 125, 140, 160, 180, 200, 225, 250 |    |      |    | 225, 250, 315, 350, 400, 500, 630 |    |      |    | 630, 700, 800 |    |      |    |  |  |
| No. of poles                                      | 3                                            |    | 4     |    | 3                                                  |      | 4     |    | 3                                      |    | 4    |    | 3                                 |    | 4    |    | 3             |    | 4    |    |  |  |
| Rated insulation voltage Ui(V)                    | 800                                          |    |       |    | 1000                                               |      |       |    |                                        |    |      |    |                                   |    |      |    |               |    |      |    |  |  |
| Rated operating voltage Ue(V)                     | AC400, AC415                                 |    |       |    |                                                    |      |       |    |                                        |    |      |    |                                   |    |      |    |               |    |      |    |  |  |
| Rated impulse withstand voltage Uimp(kV)          | 8                                            |    |       |    |                                                    |      |       |    |                                        |    |      |    | 12                                |    |      |    |               |    |      |    |  |  |
| Flashover distance (mm)                           | 50                                           |    |       |    |                                                    |      |       |    |                                        |    |      |    | 100                               |    |      |    |               |    |      |    |  |  |
| Breaking capacity level                           | C                                            | S  | L     | M  | C                                                  | S    | L     | M  | C                                      | S  | L    | M  | C                                 | S  | L    | M  | C             | S  | L    | M  |  |  |
| Ultimate short-circuit breaking capacity Icu(kA)  | 15                                           | 25 | 35    | 50 | 25                                                 | 35   | 36    | 50 | 25                                     | 35 | 36   | 50 | 42                                | 50 | 50   | 70 | 42            | 50 | 50   | 70 |  |  |
| Operating short-circuit breaking capacity Ics(kA) | 10                                           | 18 | 21    | 30 | 15                                                 | 17.5 | 25    | 36 | 15                                     | 18 | 25   | 36 | 25                                | 25 | 50   | 70 | 25            | 36 | 50   | 70 |  |  |
| Operational performance (times)                   | Powered                                      |    | 1500  |    |                                                    |      | 1500  |    |                                        |    | 1000 |    |                                   |    | 1000 |    |               |    | 500  |    |  |  |
|                                                   | Not powered                                  |    | 8500  |    |                                                    |      | 8500  |    |                                        |    | 7000 |    |                                   |    | 4000 |    |               |    | 2500 |    |  |  |
|                                                   | Total                                        |    | 10000 |    |                                                    |      | 10000 |    |                                        |    | 8000 |    |                                   |    | 5000 |    |               |    | 3000 |    |  |  |

## Protection Characteristics

### Power distribution

| Rated current (A) | Thermal release (ambient temperature +40℃) |                                | Operating current of electromagnetic release (A) |
|-------------------|--------------------------------------------|--------------------------------|--------------------------------------------------|
|                   | 1.05In (cold) non-operating time (h)       | 1.3In (hot) operating time (h) |                                                  |
| 16≤In≤63          | Non-operating within 1 hour                | ≤1                             | 10A-40A: 400A ± 20%<br>50A-800A: 10In ± 20%      |
| 63<In≤800         | Non-operating within 2 hours               | ≤2                             |                                                  |

### For protecting motors

| Rated current (A) | Thermal release (ambient temperature +40℃) |                                |                                |                                 |                | Operating current of electromagnetic release (A) |
|-------------------|--------------------------------------------|--------------------------------|--------------------------------|---------------------------------|----------------|--------------------------------------------------|
|                   | 1.0In (cold) non-operating time (h)        | 1.2In (hot) operating time (h) | 1.5In (hot) operating time (h) | 7.2In (cold) operating time (h) | Tripping level |                                                  |
| 10≤In≤25          | Non-operating within 2 hours               | ≤2                             | ≤2min                          | 0.5s<Tp≤5s                      | 5              | 10A-40A: 400A ± 20%<br>50A-800A: 12In ± 20%      |
| 25<In≤250         |                                            |                                | ≤4min                          | 4s<Tp≤10s                       | 10             |                                                  |
| 250<In≤800        |                                            |                                | ≤8min                          | 6s<Tp≤20s                       | 20             |                                                  |

## Classification of Circuit Breakers

- ◆ Classified according to the number of poles: 3-pole and 4-pole;
- ◆ Classified according to the application: For power distribution and motor protection;
- ◆ Classified according to the operation modes: Operated by handle, electric operation (denoted by P), operated by rotating handle (denoted by Z for switchgear).



# TDK1L THERMAL MAGNETIC RESIDUAL MCCB



## Scope of Application

TDK1L series molded case circuit breaker is used for AC 50/60Hz, rated working voltage of 400V, rated insulation voltage of 800V, rated working current up to 630A.

Used for frequent conversion in circuit and infrequent starting of motor.

The rated residual operating current and the maximum breaking time can be adjusted according to the actual situation.

Be able to protect lines and power supply equipment from damage, and can also provide protection against long-term grounding faults that cannot be detected by overcurrent protection, which may cause fire hazards.

The conventional leakage protection module with residual current protection circuit breaker is sampled as two phases, and this series of circuit breakers is three phases. If any phase is lost, the leakage protection module of circuit breaker can still work normally.

Comply with IEC60947-2 standard.

With the functions of overload, short circuit, leakage and undervoltage protection.

With leakage alarm output function.

Comply the electromagnetic compatibility requirements of Appendix B in IEC60947.

The full series of circuit breakers has isolation function, and its symbol is .

## Model and Meaning

|    |   |   |   |   |     |   |   |   |     |   |   |                                  |     |                   |
|----|---|---|---|---|-----|---|---|---|-----|---|---|----------------------------------|-----|-------------------|
| TD | K | 1 | L | - | 125 | M | P | 4 | 300 | 2 | B | Residual current protection type | 63A | Installation mode |
| ①  | ② | ③ | ④ |   | ⑤   | ⑥ | ⑦ | ⑧ | ⑨   | ⑩ | ⑪ | ⑫                                | ⑬   | ⑭                 |

| Serial No. | Item meaning                                                                                                                                                                                                                      |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ①          | Enterprise code: TALEMOD                                                                                                                                                                                                          |
| ②          | MCCB (Molded Case Circuit Breaker)                                                                                                                                                                                                |
| ③          | Design No.                                                                                                                                                                                                                        |
| ④          | Power leakage                                                                                                                                                                                                                     |
| ⑤          | Frame grade current (A) optional code:<br>Inm=125, Inm=250, Inm=400, Inm=630, Inm=800                                                                                                                                             |
| ⑥          | Ultimate short-circuit breaking capacity:<br>L: Standard (25, 35, 50kA); M: Middle breaking (50, 65kA); H: High breaking (50, 80kA)                                                                                               |
| ⑦          | Operation mode:<br>P: Electric operation; Z: Operate by rotating handle                                                                                                                                                           |
| ⑧          | No. of poles: 3: three-pole; 4: four-pole                                                                                                                                                                                         |
| ⑨          | Release mode and optional codes for internal accessories                                                                                                                                                                          |
| ⑩          | Optional codes for different purposes: No code: For power distribution,<br>2: For motor protection, Th: For "three-prevention" occasions                                                                                          |
| ⑪          | 4-pole product code                                                                                                                                                                                                               |
| ⑫          | Types of residual current protection<br>Optional:<br>Non-delay-type I; Delay-type I (the parameters are not adjustable)<br>Non-delay-type II; Delay-type II (the parameters are adjustable)<br>Alarm type (adjustable parameters) |
| ⑬          | Rated current                                                                                                                                                                                                                     |
| ⑭          | Installation modes are optional:<br>Front wiring of board; Rear wiring of board; Plug-in wiring;<br>Special mode(negotiated by user and factory)                                                                                  |

## Main Technical Parameters

### ◆ Technical performance indicators

| Model                                                   |                | TDK1L-125                                      |    |    |    |    | TDK1L-250                              |    |    |    |    | TDK1L-400               |    |     |    | TDK1L-630<br>TDK1L-800  |     |   |
|---------------------------------------------------------|----------------|------------------------------------------------|----|----|----|----|----------------------------------------|----|----|----|----|-------------------------|----|-----|----|-------------------------|-----|---|
| Frame grade current Inm(A)                              |                | 125                                            |    |    |    |    | 250                                    |    |    |    |    | 400                     |    |     |    | 630                     |     |   |
| Rated current In(A)                                     |                | (10), 16, 20, 25, 32, 40, 50, 63, 80, 100, 125 |    |    |    |    | 100, 125, 140, 160, 180, 200, 225, 250 |    |    |    |    | 225, 250, 315, 350, 400 |    |     |    | 400, 500, 630, 700, 800 |     |   |
| No. of poles                                            |                | 3                                              |    | 4  |    |    | 3                                      |    | 4  |    |    | 3                       |    | 4   |    | 3                       |     | 4 |
| Rated insulation voltage Ui(V)                          |                | 800                                            |    |    |    |    |                                        |    |    |    |    |                         |    |     |    |                         |     |   |
| Rated operating voltage Ue(V)                           |                | AC400                                          |    |    |    |    |                                        |    |    |    |    |                         |    |     |    |                         |     |   |
| Rated impulse withstand voltage Uimp(kV)                |                | 8                                              |    |    |    |    |                                        |    |    |    |    |                         |    |     |    |                         |     |   |
| Flashover distance (mm)                                 |                | 50                                             |    |    |    |    |                                        |    |    |    |    | 100                     |    |     |    |                         |     |   |
| Breaking capacity level                                 |                | L                                              | M  | L  | M  | H  | L                                      | M  | L  | M  | H  | L                       | M  | H   | L  | M                       | H   |   |
| Ultimate short-circuit breaking capacity Icu(kA)        | AC400V         | 50                                             | 85 | 25 | 35 | 50 | 50                                     | 85 | 25 | 50 | 85 | 50                      | 65 | 100 | 50 | 65                      | 100 |   |
| Operating short-circuit breaking capacity Ics(kA)       | AC400V         | 35                                             | 50 | 18 | 22 | 35 | 35                                     | 50 | 18 | 35 | 50 | 35                      | 42 | 65  | 35 | 42                      | 65  |   |
| Rated residual short circuit on (off) capacity I△m (kA) |                | 1/4Icu                                         |    |    |    |    |                                        |    |    |    |    |                         |    |     |    |                         |     |   |
| Rated residual operating current I△n(mA)                | Non-delay type | 30/100/500/100/300/500                         |    |    |    |    | 30/100/500/100/300/500                 |    |    |    |    | 100/300/500             |    |     |    | 300/500/1000            |     |   |
|                                                         | Delay time     | 100/300/500                                    |    |    |    |    | 100/300/500                            |    |    |    |    | 100/300/500             |    |     |    | 300/500/1000            |     |   |
| Rated residual non-operating current I△no(mA)           |                | 1/2 I△n                                        |    |    |    |    | 1/2 I△n                                |    |    |    |    | 1/2 I△n                 |    |     |    | 1/2I△n                  |     |   |
| Operational performance (times)                         | Powered        | 1500                                           |    |    |    |    | 1000                                   |    |    |    |    | 1000                    |    |     |    | 1000                    |     |   |
|                                                         | Not powered    | 8500                                           |    |    |    |    | 7000                                   |    |    |    |    | 4000                    |    |     |    | 4000                    |     |   |
|                                                         | Total          | 10000                                          |    |    |    |    | 8000                                   |    |    |    |    | 5000                    |    |     |    | 5000                    |     |   |
| Residual current protection operation time              |                | I△n                                            |    |    |    |    | 2I△n                                   |    |    |    |    | 5I△n                    |    |     |    | 10I△n                   |     |   |
| Maximum breaking time (s)                               | Non-delay type | 0.3                                            |    |    |    |    | 0.15                                   |    |    |    |    | 0.04                    |    |     |    | 0.04                    |     |   |
|                                                         | Delay time     | 0.4/1                                          |    |    |    |    | 0.4/1                                  |    |    |    |    | 0.4/1                   |    |     |    | 0.4/1                   |     |   |

**Note:** The maximum breaking time of delay type can be customized according to requirements of customers.

# TDK5L THERMAL MAGNETIC RESIDUAL MCCB



## Scope of Application

TDK5L series molded case current circuit breaker with residual current protection (hereinafter referred to as circuit breaker) is suitable for distribution network with a frequency of AC 50Hz, the rated working voltage of 400V, the rated insulation voltage of 1000V and the rated current of 800A. It can be used to provide indirect contact protection for people, prevent fire danger caused by grounding fault current caused by equipment insulation damage, distribute electric energy, protect overload and short circuit of lines and equipment, and also be used for infrequent switching of lines and infrequent starting of motors.

The rated residual current  $I\Delta n$  and the maximum operating time of the rated residual current can be adjusted on site according to the actual situation; When the phase voltage is reduced to 85V, the leakage protection module can still work normally and has the function of leakage alarm output.

The products conform to IEC60947-2 standards.

## Model and Meaning

|    |   |   |   |   |     |   |   |   |   |   |   |     |   |
|----|---|---|---|---|-----|---|---|---|---|---|---|-----|---|
| TD | K | 5 | L | - | 125 | i | M | S | Z | / | 4 | 300 | B |
| ①  | ② | ③ | ④ | ⑤ | ⑥   | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ |     |   |

| Serial No. | Item meaning                                                                                           |
|------------|--------------------------------------------------------------------------------------------------------|
| ①          | Enterprise code: TALEMOD                                                                               |
| ②          | MCCB (Molded Case Circuit Breaker)                                                                     |
| ③          | Design No.                                                                                             |
| ④          | With residual current protection                                                                       |
| ⑤          | Frame grade current (A): Inm=125, Inm=160, Inm=250, Inm=400, Inm=630i, Inm=630, Inm=800                |
| ⑥          | i: Capacity expansion current; Conventional no code                                                    |
| ⑦          | Breaking capacity: C: Low breaking; S: Ordinary breaking; L: Middle breaking; M: High breaking         |
| ⑧          | Surface cover type: S: Single-cap; Double-cap no code                                                  |
| ⑨          | Operating mode: Manual direct operation: no code; Z: Operate by rotating handle; P: Electric operation |
| ⑩          | No. of poles: 3: three-pole; 4: four-pole                                                              |
| ⑪          | Release mode and accessory code                                                                        |
| ⑫          | 4-pole product code; 3-pole product no code                                                            |

**Note:** 4-pole product code

- ◆ Type A: Overcurrent tripping element is not installed at N pole, and N pole is always ON and not combined with other three poles.
- ◆ Type B: Overcurrent tripping element is not installed at N pole, and N pole is combined with other three poles (N pole is combined first and then separated).

## Classification of Circuit Breakers

- ◆ Classified according to the number of poles: 3-pole and 4-pole;
- ◆ Classified according to the application: For power distribution and motor protection;
- ◆ Classified according to the operation modes: Operated by handle, electric operation (denoted by P), operated by rotating handle (denoted by Z for switchgear).

## Main Technical Parameters

| Model                                             |                | TDK5L-125<br>TDK5L-160                                   |      |      |       | TDK5L-250                                    |      |      |       | TDK5L-400<br>TDK5L-630i                 |      |      |       | TDK5L-630<br>TDK5L-800     |      |      |       |
|---------------------------------------------------|----------------|----------------------------------------------------------|------|------|-------|----------------------------------------------|------|------|-------|-----------------------------------------|------|------|-------|----------------------------|------|------|-------|
| Frame grade current Inm(A)                        |                | 125, 160                                                 |      |      |       | 250                                          |      |      |       | 400, 630i                               |      |      |       | 800                        |      |      |       |
| Rated current In(A)                               |                | 16, 20, 25, 32,<br>40, 50, 63, 80,<br>100, 125, 140, 160 |      |      |       | 100, 125, 140,<br>160, 180, 200,<br>225, 250 |      |      |       | 225, 250, 315,<br>350, 400, 500,<br>630 |      |      |       | 400, 500, 630,<br>700, 800 |      |      |       |
| No. of poles                                      |                | 3                                                        | 4    |      |       | 3                                            | 4    |      |       | 3                                       | 4    |      |       | 3                          | 4    |      |       |
| Rated insulation voltage Ui(V)                    |                | 1000                                                     |      |      |       |                                              |      |      |       |                                         |      |      |       | 800                        |      |      |       |
| Rated operating voltage Ue(V)                     |                | AC400                                                    |      |      |       |                                              |      |      |       |                                         |      |      |       |                            |      |      |       |
| Rated impulse withstand voltage Uimp(kV)          |                | 8                                                        |      |      |       |                                              |      |      |       |                                         |      |      |       |                            |      |      |       |
| Flashover distance (mm)                           |                | 50                                                       |      |      |       |                                              |      |      |       | 100                                     |      |      |       |                            |      |      |       |
| Breaking capacity level                           |                | C                                                        | S    | L    | M     | C                                            | S    | L    | M     | C                                       | S    | L    | M     | C                          | S    | L    | M     |
| Ultimate short-circuit breaking capacity Icu(kA)  |                | 25                                                       | 30   | 36   | 50    | 25                                           | 30   | 36   | 50    | 42                                      | 50   | 50   | 70    | 42                         | 50   | 50   | 70    |
| Operating short-circuit breaking capacity Ics(kA) |                | 15                                                       | 15   | 25   | 36    | 15                                           | 15   | 25   | 36    | 25                                      | 25   | 50   | 70    | 25                         | 36   | 50   | 70    |
| Rated residual operating current IΔn (mA)         |                | 100/300/500                                              |      |      |       |                                              |      |      |       |                                         |      |      |       | 300/500/1000               |      |      |       |
| Rated residual non-operating current IΔno(mA)     |                | 1/2IΔn                                                   |      |      |       |                                              |      |      |       |                                         |      |      |       |                            |      |      |       |
| Residual current protection operation time        |                | IΔn                                                      | 2IΔn | 5IΔn | 10IΔn | IΔn                                          | 2IΔn | 5IΔn | 10IΔn | IΔn                                     | 2IΔn | 5IΔn | 10IΔn | IΔn                        | 2IΔn | 5IΔn | 10IΔn |
| Maximum breaking time (s)                         | Non-delay type | 0.3                                                      | 0.15 | 0.04 | 0.04  | 0.3                                          | 0.15 | 0.04 | 0.04  | 0.3                                     | 0.15 | 0.04 | 0.04  | 0.3                        | 0.15 | 0.04 | 0.04  |
|                                                   | Delay time     | 0.4/1                                                    |      |      |       |                                              |      |      |       |                                         |      |      |       |                            |      |      |       |
| Operational performance (times)                   | Powered        | 1500                                                     |      |      |       | 1000                                         |      |      |       | 1000                                    |      |      |       | 1000                       |      |      |       |
|                                                   | Not powered    | 8500                                                     |      |      |       | 7000                                         |      |      |       | 4000                                    |      |      |       | 4000                       |      |      |       |
|                                                   | Total          | 10000                                                    |      |      |       | 8000                                         |      |      |       | 5000                                    |      |      |       | 5000                       |      |      |       |

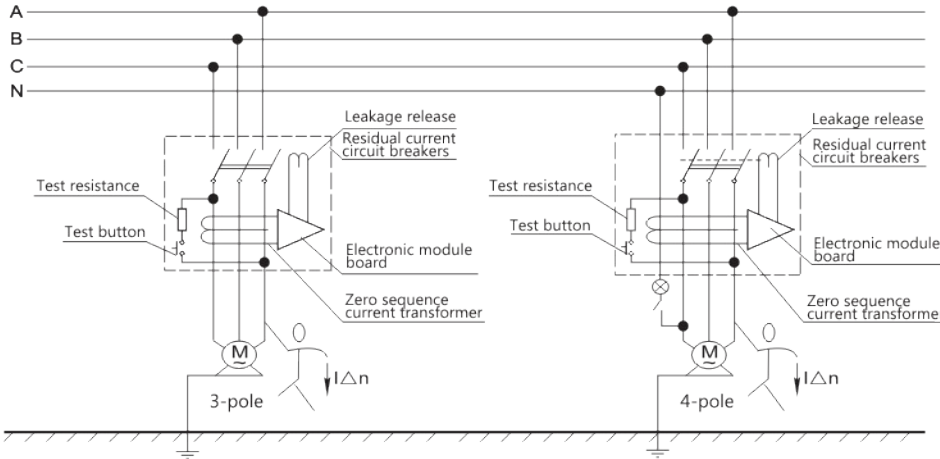
## Structure and Working Principle

### Structure

The series of circuit breakers are electronic current-operated leakage protectors. The main components include main switch (including over-current release), zero-sequence current transformer, electronic amplification components, leakage release, test device, all of which are installed in a plastic housing.

### Working principle

In case of any leakage or electric shock in the protected circuit, the zero sequence current transformer has a signal output. When the signal output reaches a certain value, it triggers the thyristor to conduct and makes the leakage release act, thus driving the traction bar to disconnect the operating mechanism in a short time and cut off the power supply, thus realizing the leakage protection function. (The schematic diagram of working principle is as follows)





## TDK1E ELECTRONIC MCCB

## Model and Meaning



Knob type



LCD type

|    |   |   |   |   |     |   |   |   |   |     |   |   |     |                   |                   |
|----|---|---|---|---|-----|---|---|---|---|-----|---|---|-----|-------------------|-------------------|
| TD | K | 1 | E | - | 125 | L | P | / | 3 | 300 | 2 | B | 63A | Installation mode | Other accessories |
| ①  | ② | ③ | ④ |   | ⑤   | ⑥ | ⑦ | ⑧ | ⑨ | ⑩   | ⑪ | ⑫ |     | ⑬                 | ⑭                 |

| Serial No. | Item meaning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ①          | Enterprise code: TALEMOD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| ②          | MCCB (Molded Case Circuit Breaker)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| ③          | Design No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| ④          | Electronic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| ⑤          | Frame grade current (A) optional code:<br>Inm=125, Inm=250, Inm=400, Inm=630, Inm=800, Inm=1250                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| ⑥          | Ultimate short-circuit breaking capacity:<br>Knob type: L: Standard (35, 65kA); M: Middle breaking (50, 85kA); H: High breaking (85, 100kA)<br>LCD type: Y: Middle breaking (50, 85kA); G: High breaking (85, 100kA)                                                                                                                                                                                                                                                                                                               |
| ⑦          | Operating mode optional code: P: Electric operating; Z: Operate by rotating handle                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| ⑧          | No. of poles: 3: three-pole; 4: four-pole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| ⑨          | Release mode and accessory code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| ⑩          | Optional codes for different purposes<br>No code: For power distribution; 2: For motor protection; Th: For "three-prevention" occasion                                                                                                                                                                                                                                                                                                                                                                                             |
| ⑪          | 4-pole product code:<br>Type A: Overcurrent tripping element is not installed at N pole, and N pole is always ON and not combined with other three poles<br>Type B: Overcurrent tripping element is not installed at N pole, and N pole is combined with other three poles.<br>Type C: Overcurrent tripping element is not installed at N pole, and N pole is combined with other three poles.<br>Type D: Overcurrent tripping element is not installed at N pole, and N pole is always ON and not combined with other three poles |
| ⑫          | Rated current                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| ⑬          | Installation modes are optional: Front wiring of board; Rear wiring of board; Plug-in wiring; Special mode (negotiated by user and factory)                                                                                                                                                                                                                                                                                                                                                                                        |
| ⑭          | Other accessories are optional: Mechanical interlocking between two circuit breakers                                                                                                                                                                                                                                                                                                                                                                                                                                               |

- ◆ Wiring methods are divided into four types such as front wiring of board, rear wiring of board, plug-in front wiring of board and plug-in rear wiring of board. According to the accessories to the circuit breaker, it is divided into two types: with accessories and without accessories.
- ◆ Accessories are divided into internal accessories and external accessories: internal accessories include shunt trip, undervoltage trip, auxiliary contact and alarm contact;
- ◆ External accessories include operating mechanism by rotating handle and electric operating mechanism.

## Main Functions and Features

- ◆ High-performance 32-bit ARM microprocessor is used to carry out signal processing and intelligent control in real time;
- ◆ LCD Chinese/English display provides friendly HMI and simple operation;
- ◆ Long delay, short delay and instantaneous three-stage protection, electronic tripping mode is applied, which is independent of supply voltage;
- ◆ High breaking ability could ensure the reliability of short circuit protection for the line;
- ◆ In current fault protection, the fault reasons can be stored and reported;
- ◆ Detailed real-time information of load can be queried: current, voltage and phase loss;
- ◆ It integrates comprehensive electrical protection of short circuit, overload, overvoltage and undervoltage, and phase loss;
- ◆ Built-in communication function: Remote communication, telemetry, remote control and remote adjustment could be achieved.

## Operating and Installation Conditions

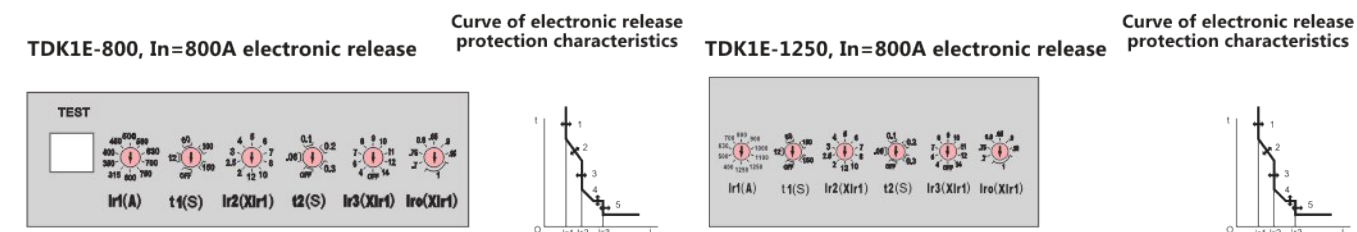
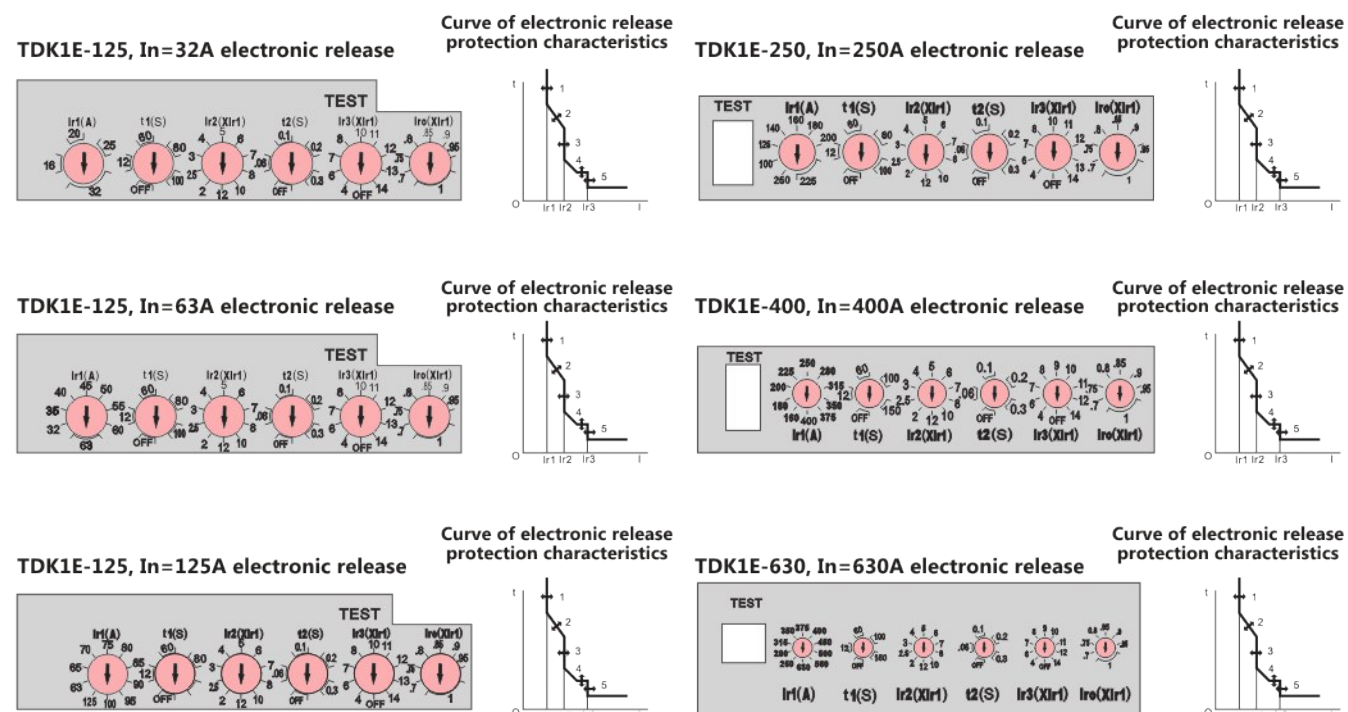
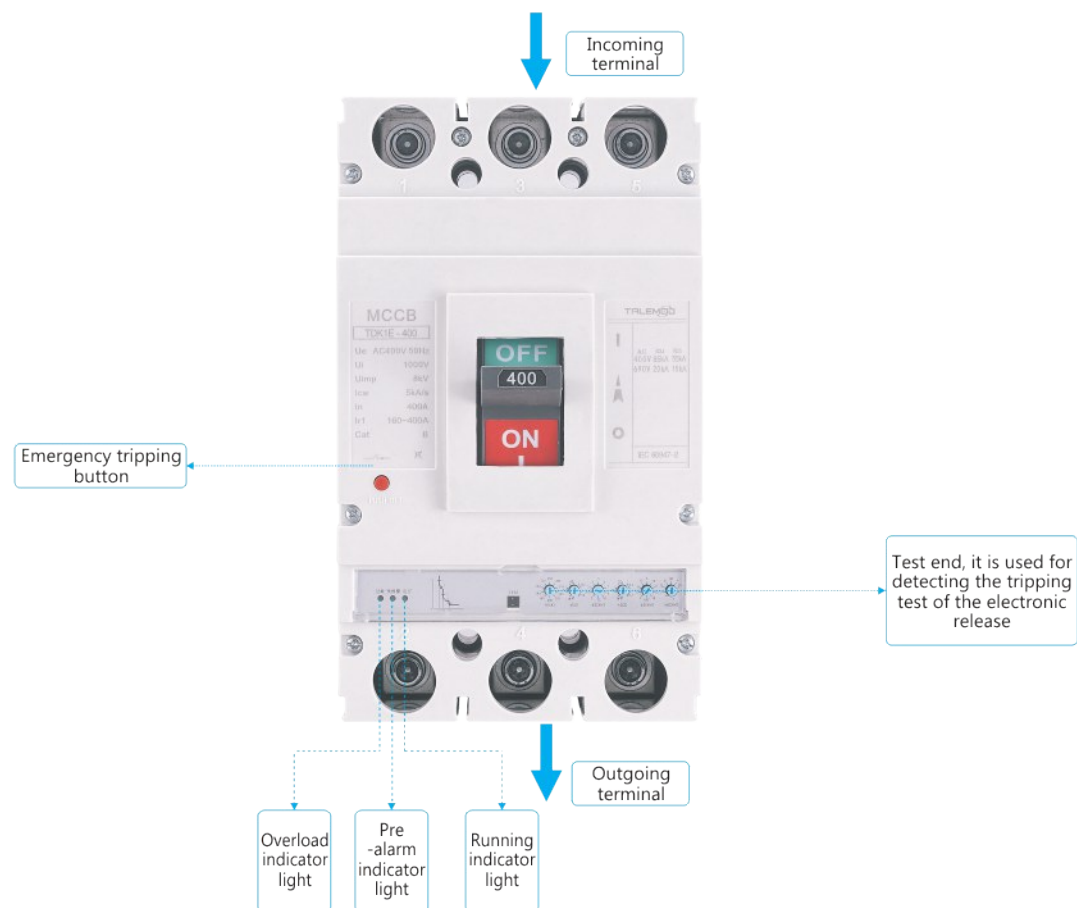
- ◆ Ambient temperature: -5℃~+40℃, and the average value does not exceed + 35℃ within 24 hours;
- ◆ Altitude: ≤ 2000m;
- ◆ Relative humidity of air: ≤ 95%;
- ◆ Installation category: III;
- ◆ Pollution level: 3;
- ◆ Installation mode: Horizontal or vertical;
- ◆ Installation conditions: The external magnetic field shall not exceed 5 times of the geomagnetic field in any direction.

## Main Technical Parameters

| Model                                                      |             | TDK1E<br>-125     |                                         |                                                      | TDK1E<br>-250                                   |      | TDK1E<br>-400                                                |     | TDK1E<br>-630                                                |      | TDK1E<br>-800                                                |      | TDK1E<br>-1250                                             |    |      |      |    |
|------------------------------------------------------------|-------------|-------------------|-----------------------------------------|------------------------------------------------------|-------------------------------------------------|------|--------------------------------------------------------------|-----|--------------------------------------------------------------|------|--------------------------------------------------------------|------|------------------------------------------------------------|----|------|------|----|
| Frame grade current Inm(A)                                 |             | 125               |                                         |                                                      | 250                                             |      | 400                                                          |     | 630                                                          |      | 800                                                          |      | 1250                                                       |    |      |      |    |
| Rated current In(A)                                        |             | 32                | 63                                      | 125                                                  | 250                                             |      | 400                                                          |     | 630                                                          |      | 800                                                          |      | 1250                                                       |    |      |      |    |
| Setting current Ir1(A)<br>at overload long delay           |             | 16, 20,<br>25, 32 | 32, 35,<br>40, 45,<br>50, 55,<br>60, 63 | 63, 65,<br>70, 75,<br>80, 85,<br>90, 95,<br>100, 125 | 100, 125,<br>140, 160,<br>180, 200,<br>225, 250 |      | 160, 180,<br>200, 225,<br>250, 280,<br>315, 350,<br>375, 400 |     | 250, 280,<br>315, 350,<br>375, 400,<br>450, 500,<br>560, 630 |      | 315, 350,<br>400, 450,<br>500, 560,<br>630, 700,<br>750, 800 |      | 400, 500,<br>630, 700,<br>800, 900,<br>1000, 1100,<br>1250 |    |      |      |    |
| Rated operating voltage Ue(V)                              |             | AC400             |                                         |                                                      |                                                 |      |                                                              |     |                                                              |      |                                                              |      |                                                            |    |      |      |    |
| Rated insulation voltage Ui(V)                             |             | 1000              |                                         |                                                      |                                                 |      |                                                              |     |                                                              |      |                                                              |      |                                                            |    |      |      |    |
| Rated impulse withstand voltage Uimp(kV)                   |             | 8                 |                                         |                                                      |                                                 |      |                                                              |     |                                                              |      |                                                              |      |                                                            |    |      |      |    |
| No. of poles                                               |             | 3, 4              |                                         |                                                      | 3, 4                                            |      | 3, 4                                                         |     | 3, 4                                                         |      | 3, 4                                                         |      | 3                                                          |    |      |      |    |
| Breaking capacity level                                    |             | L                 | M                                       | H                                                    | L                                               | M(Y) | H(G)                                                         | L   | M(Y)                                                         | H(G) | L                                                            | M(Y) | H(G)                                                       | L  | M(Y) | H(G) |    |
| Rated ultimate short-circuit<br>breaking capacity Icu(kA)  | AC400V      | 35                | 50                                      | 85                                                   | 35                                              | 50   | 85                                                           | 65  | 85                                                           | 100  | 65                                                           | 85   | 100                                                        | 65 | 85   | 100  | 80 |
|                                                            | AC690V      | -                 | 20                                      | -                                                    | -                                               | 20   | -                                                            | -   | 20                                                           | -    | -                                                            | 20   | -                                                          | -  | 20   | -    |    |
| Rated operating short-circuit<br>breaking capacity Ics(kA) | AC400V      | 22                | 35                                      | 50                                                   | 22                                              | 35   | 50                                                           | 42  | 55                                                           | 65   | 42                                                           | 55   | 65                                                         | 42 | 55   | 65   | 50 |
|                                                            | AC690V      | -                 | 10                                      | -                                                    | -                                               | 10   | -                                                            | -   | 15                                                           | -    | -                                                            | 15   | -                                                          | -  | 15   | -    |    |
| Rated short-time withstand current Icw(kA/1s)              |             |                   |                                         |                                                      | 5                                               |      | 5                                                            |     | 8                                                            |      | 10                                                           |      | 15                                                         |    |      |      |    |
| Utilization category                                       |             | A                 |                                         |                                                      | B                                               |      | B                                                            |     | B                                                            |      | B                                                            |      | B                                                          |    |      |      |    |
| Flashover distance (mm)                                    |             | ≥50               |                                         |                                                      | ≥50                                             |      | ≥100                                                         |     | ≥100                                                         |      | ≥100                                                         |      | ≥100                                                       |    |      |      |    |
| Operational performance<br>(times)                         | Powered     | 1500              |                                         |                                                      | 1000                                            |      | 1000                                                         |     | 1000                                                         |      | 1000                                                         |      | 500                                                        |    |      |      |    |
|                                                            | Not powered | 8500              |                                         |                                                      | 7000                                            |      | 4000                                                         |     | 4000                                                         |      | 4000                                                         |      | 2500                                                       |    |      |      |    |
|                                                            | Total       | 10000             |                                         |                                                      | 8000                                            |      | 5000                                                         |     | 5000                                                         |      | 5000                                                         |      | 3000                                                       |    |      |      |    |
| Overall dimension (mm)                                     | W           | 92                | 122                                     | 107                                                  | 142                                             | 150  | 198                                                          | 210 | 280                                                          | 210  | 280                                                          | 210  |                                                            |    |      |      |    |
|                                                            | L           | 150               |                                         |                                                      | 165                                             |      | 257                                                          |     | 280                                                          |      | 280                                                          |      | 340                                                        |    |      |      |    |
|                                                            | H           | 92                |                                         |                                                      | 90                                              |      | 106.5                                                        |     | 115.5                                                        |      | 115.5                                                        |      | 138.5                                                      |    |      |      |    |

## Introduction to the Structure and Description of the Operation Panel

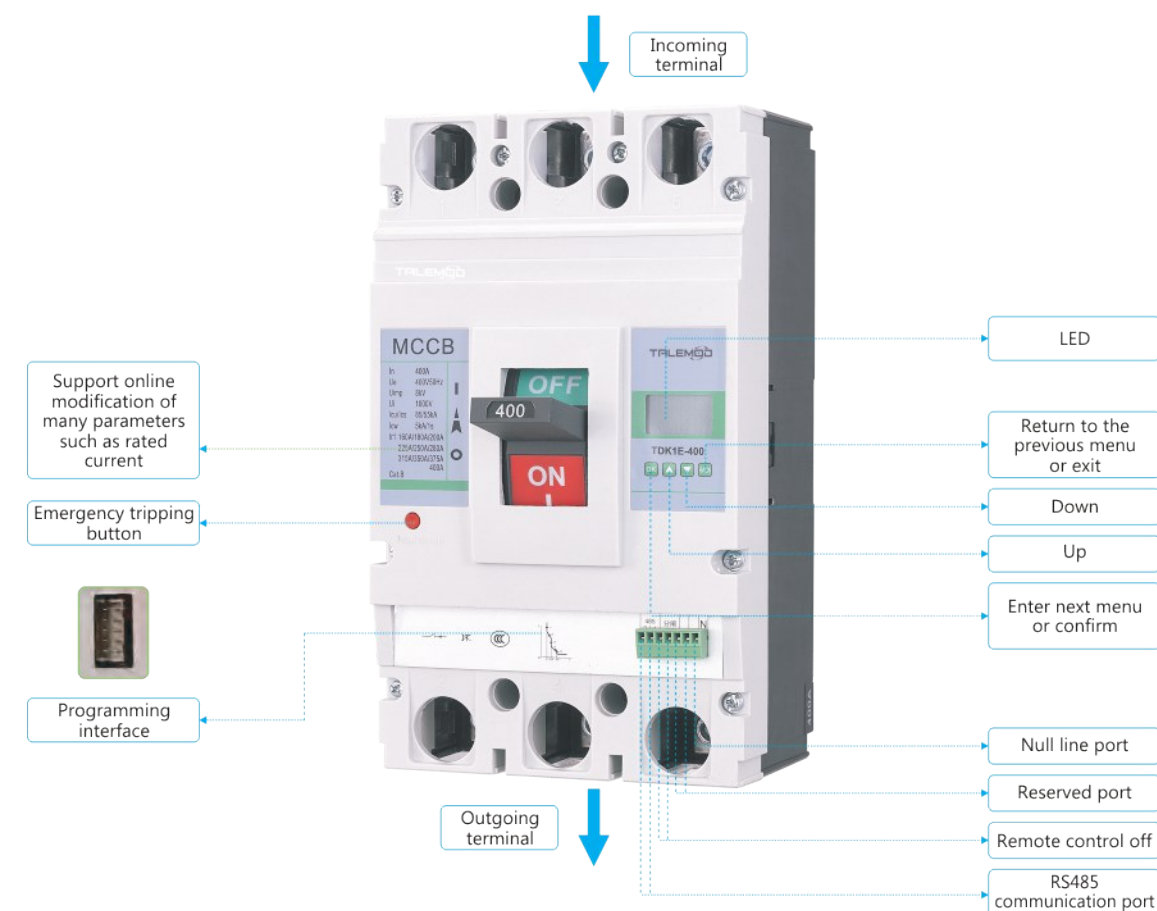
### Knob type



### Protection:

1. Overload long delay operating current  $I_{r1}$  regulation. Gears 4 to 10 can be adjusted according to the rated current of the circuit breaker;
2. Long delay action time  $t_1$  regulation. Gear 4 can be regulated;
3. Short circuit short delay operating current  $I_{r2}$  regulation. Gear 10 can be regulated;
4. Short delay action time  $t_2$  regulation. Gear 5 can be regulated;
5. The current  $I_{r3}$  of short-circuit instantaneous operation can be adjusted in 8, 9 or 10 gears;
6. Pre-alarm operating current  $I_{r0}$  regulation. Gears 7 can be regulated.

### LCD type





# TDW1 AIR CIRCUIT BREAKER



## Scope of Application

TDW1 series air circuit breaker (hereinafter referred to as "circuit-breaker") is suitable for distribution network with frequency of AC 50Hz, rated current of 630A-6300A, rated insulation voltage of 1000V with rated operational voltages of 400V and 690V, which is used to distribute electric energy and protect lines and power supply equipment from the faults such as overload, undervoltage, short circuit, and single-phase earth faults. It can also be used as an isolating switch. Circuit breaker has a variety of protection functions, which provides precise selective protection, reduces unnecessary outages, and enhances power supply reliability and safety. Circuit breakers rated at 1000A and below can be used for infrequent motor starting, with built-in protection functions. Comply with GB/T14048.2 (Low-voltage switch and control gear - Part 2: circuit-breaker). Equivalent to IEC60947-2 (Low-voltage switch and control gear - Part 2: circuit-breaker).

## Model and Meaning

| Serial No. | Item meaning                               |
|------------|--------------------------------------------|
| ①          | Enterprise code: TALEMOD                   |
| ②          | Product code                               |
| ③          | Design No.                                 |
| ④          | Frame grade current (A)                    |
| ⑤          | Low section: Not marked<br>High section: H |
| ⑥          | Rated current                              |
| ⑦          | No.of poles                                |
| ⑧          | Type of intelligent controller             |
| ⑨          | Operating voltage of control loop          |
| ⑩          | Installation structure                     |

## Main Technical Parameters

| Model                                                                 |                         |                  | TDW1-2000(H)                       |                  |          | TDW1-3200(H)                   |  |                   |
|-----------------------------------------------------------------------|-------------------------|------------------|------------------------------------|------------------|----------|--------------------------------|--|-------------------|
| Frame grade rated current Inm (A)                                     |                         |                  | 2000(H)                            |                  |          | 3200(H)                        |  |                   |
| Rated current In(A)                                                   |                         |                  | 630, 800                           | 1000, 1250, 1600 | 2000     | 2000, 2500                     |  | 2900, 3200        |
| Rated operating voltage Ue(V)                                         |                         |                  | AC400, AC690                       |                  |          | AC400, AC690                   |  |                   |
| Rated frequency (Hz)                                                  |                         |                  | 50                                 |                  |          | 50                             |  |                   |
| Rated insulation voltage Ui(V)                                        |                         |                  | 1000                               |                  |          | 1000                           |  |                   |
| Rated impulse withstand voltage Uimp(kV)                              |                         |                  | 12                                 |                  |          | 12                             |  |                   |
| No. of poles                                                          |                         |                  | 3, 4                               |                  |          | 3, 4                           |  |                   |
| Total breaking time (ms)                                              |                         |                  | ≤30                                |                  |          | ≤30                            |  |                   |
| Closing time (ms)                                                     |                         |                  | ≤60                                |                  |          | ≤70                            |  |                   |
| Rated ultimate short-circuit breaking capacity Icu(kA) (valid value)  | AC400V                  |                  | 65 80(H)                           |                  |          | 65 120(H)                      |  |                   |
|                                                                       | AC690V                  |                  | 50                                 |                  |          | 100                            |  |                   |
| Rated operating short-circuit breaking capacity Ics(kA) (valid value) | AC400V                  |                  | 50 65(H)                           |                  |          | 65 120(H)                      |  |                   |
|                                                                       | AC690V                  |                  | 50                                 |                  |          | 100                            |  |                   |
| Rated short-circuit making capacity Icm (kAME value)                  | AC400V                  |                  | 176                                |                  |          | 220                            |  |                   |
|                                                                       | AC690V                  |                  | 105                                |                  |          | 143                            |  |                   |
| Rated short-time withstand current Icw(1s)(kA) (valid value)          | AC400V                  |                  | 50 65(H)                           |                  |          | 80 120(H)                      |  |                   |
|                                                                       | AC690V                  |                  | 50                                 |                  |          | 100                            |  |                   |
| Operational performance (times)                                       | Electrical service life | AC400V           | 10000                              |                  |          | 10000                          |  | 8000              |
|                                                                       |                         | AC690V           | 5000                               |                  |          | 5000                           |  | 5000              |
|                                                                       | Mechanical service life | Maintenance free | 10000                              |                  |          | 10000                          |  | 8000              |
|                                                                       |                         | Maintainable     | 20000                              |                  |          | 20000                          |  | 15000             |
| Installation type                                                     |                         | Fixed type       | √                                  |                  |          | √                              |  | √                 |
|                                                                       |                         | Drawer type      | √                                  |                  |          | √                              |  | √                 |
| Wiring mode of main circuit                                           |                         | Fixed type       | Horizontal wiring, vertical wiring |                  |          | Horizontal and vertical wiring |  | Horizontal wiring |
|                                                                       |                         | Drawer type      | Horizontal wiring, vertical wiring |                  |          | Horizontal and vertical wiring |  | Horizontal wiring |
| Overall dimension: W×H×D(mm)                                          |                         | Fixed type 3P    | 370×402×325                        |                  |          | 422×402×325                    |  |                   |
|                                                                       |                         | Fixed type 4P    | 465×402×325                        |                  |          | 537×402×325                    |  |                   |
|                                                                       |                         | Drawer type 3P   | 375×432×421                        |                  |          | 435×432×421                    |  |                   |
|                                                                       |                         | Drawer type 4P   | 470×432×421                        |                  |          | 550×432×421                    |  |                   |
| Weight (kg)<br>( ): Extended busbar type                              |                         | Fixed type 3P    | 39(41.5)                           | 39(41.5)         | 39(41.5) | 46(55)                         |  | 56(66)            |
|                                                                       |                         | Fixed type 4P    | 48(51)                             | 48(51)           | 48(51)   | 58(70)                         |  | 68(82)            |
|                                                                       |                         | Drawer type 3P   | 68(69.5)                           | 68(69.5)         | 68(69.5) | 92(98)                         |  | 96(104)           |
|                                                                       |                         | Drawer type 4P   | 79(81)                             | 79(81)           | 79(81)   | 108(115)                       |  | 118(130)          |

Main Technical Parameters

| Model                                                                    |                         | TDW1-4000(H)     |                   | TDW1-6300(H)      |      |      |
|--------------------------------------------------------------------------|-------------------------|------------------|-------------------|-------------------|------|------|
| Frame grade rated current Inm (A)                                        |                         | 4000(H)          |                   | 6300(H)           |      |      |
| Rated current In(A)                                                      |                         | 3200, 3600, 4000 |                   | 4000              | 5000 | 6300 |
| Rated operating voltage Ue(V)                                            |                         | AC400, AC690     |                   | AC400, AC690      |      |      |
| Rated frequency (Hz)                                                     |                         | 50               |                   | 50                |      |      |
| Rated insulation voltage Ui(V)                                           |                         | 1000             |                   | 1000              |      |      |
| Rated impact withstand voltage (kV)                                      |                         | 12               |                   | 12                |      |      |
| Number of poles (P)                                                      |                         | 3                |                   | 3, 4              |      |      |
| Total breaking time (ms)                                                 |                         | ≤ 30             |                   | ≤ 30              |      |      |
| Closing time (ms)                                                        |                         | ≤ 70             |                   | ≤ 80              |      |      |
| Rated ultimate short-circuit breaking capacity Icu(kA)<br>(valid value)  | AC400V                  | 80               | 120(H)            | 100 120(H)        |      |      |
|                                                                          | AC690V                  | 100              |                   | 100               |      |      |
| Rated operating short-circuit breaking capacity Ics(kA)<br>(valid value) | AC400V                  | 65               | 120(H)            | 80 120(H)         |      |      |
|                                                                          | AC690V                  | 100              |                   | 100               |      |      |
| Rated short-circuit making capacity Icm (kAME value)                     | AC400V                  | 220              |                   | 264               |      |      |
|                                                                          | AC690V                  | 143              |                   | 176               |      |      |
| Rated short-time withstand current Icw(1s)(kA)<br>(valid value)          | AC400V                  | 65               | 120(H)            | 80 120(H)         |      |      |
|                                                                          | AC690V                  | 100              |                   | 100               |      |      |
| Operational performance (times)                                          | Electrical service life | AC400V           | 8000              | 1000              |      |      |
|                                                                          |                         | AC690V           | 5000              | 600               |      |      |
|                                                                          | Mechanical service life | Maintenance free | 8000              | 3000              |      |      |
|                                                                          |                         | Maintainable     | 15000             | 5000              |      |      |
| Installation type                                                        |                         | Fixed type       | —                 | —                 |      |      |
|                                                                          |                         | Drawer type      | √                 | √                 |      |      |
| Wiring mode of main circuit                                              |                         | Fixed type       | —                 | —                 |      |      |
|                                                                          |                         | Drawer type      | Horizontal wiring | Horizontal wiring |      |      |
| Overall dimension: W×H×D(mm)                                             |                         | Fixed type 3P    | —                 | —                 |      |      |
|                                                                          |                         | Fixed type 4P    | —                 | —                 |      |      |
|                                                                          |                         | Drawer type 3P   | 550×432×494       | 895×432×494       |      |      |
|                                                                          |                         | Drawer type 4P   | —                 | 895×432×494       |      |      |
| Weight (kg)<br>( ): Extended busbar type                                 |                         | Fixed type 3P    | —                 | —                 | —    | —    |
|                                                                          |                         | Fixed type 4P    | —                 | —                 | —    | —    |
|                                                                          |                         | Drawer type 3P   | 132               | 201               | 215  | 215  |
|                                                                          |                         | Drawer type 4P   | —                 | 213               | 230  | 230  |