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m^{2}-\frac{\pi}{8}
$$

Technical catalogue

## Automatic Transfer Switches

## ATS

## Automatic Transfer Switches

An automatic transfer switch continuously monitors utility power. When the utility power failures, the transfer switch will signal the generator to start. Once the generator has reached operating speeds with correct frrquency and voltage levels, the transfer switch will disconnect the unility source and connect the generator.

After the utility power is restores, the automatic transfer switch returns the load to the grid. The generator automatically shuts down


## B B < HanKwang <br> ELECTRIC <br> Electric Co.,Ltd.

@ Automatic Transfer Switches - ATS
is a collaborative product between two electrical equipment manufacturers Hankwang and BTB electric

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## General

## Applied standard

IEC-60947-6-1

IEC-60947-2-1
BS 4652 part 1
VDE 0660

ANSI (27.13)
KSC 8325

## Operating conditions

Ambient temperature: Automatic Transfer Switches can be used in ambient conditions where the surrounding air temperature varies between $-20^{\circ} \mathrm{C}$ and $+60^{\circ} \mathrm{C}$, and stored in ambients with temperatures between $-25^{\circ} \mathrm{C}$ and $+65^{\circ} \mathrm{C}$

- Altitude: Below 2,000m above sea level.

Mounting conditions: Perpendicularity and angularity $\leq 10^{\circ}$

## Unique features

- Protection function of Circuit Breaker with digital overcurrent unit. Protection provided for overload, short circuit and ground faults.
- By-Pass Operation without interruption to load side.
- Manual operating facility available.
- Overlapping Neutral Pole.
- ATS and By-Pass switches are withdrawable.
- Single frame compact design saving space.
- User-friendly microprocessor controller.
- LCD display with monitoring and measurements.
type


## Automatic Transfer Switches

## Application scope

Electromagnetic operation, coupled with a power-saving structure facilitated by the transient excitation method, ensures a dependable power supply. Automatic Transfer Switches of the N type are well-suited for factories, hospitals, and residential settings with modest power requirements,
 necessitating swift switching between power sources.

## Salient features

- Outstanding switching performance and reliable operational function.
- Compact and lightweight design enabling rapid switching (within 15 milliseconds).
- The molded breaking component, completely sealed, not only prevents electric shock but also guards against electric accidents caused by foreign substances.
- The operation sequence supports both AC and DC power sources.
- Ensures safety under varying flow-current conditions, with minimized operating current maximizing flow current performance.
- Robust protection is provided through a latch structure.
- Features a double throw type design for enhanced functionality.


## Image and structure



## Selection table



Dimensions


2P
Side View



## 3P



| $\begin{gathered} \text { } 63 \mathrm{~A} \\ \sim \end{gathered}$ | (mm) |  |  | $\begin{aligned} & 200 \mathrm{~A} \\ & 250 \mathrm{~A} \end{aligned}$ | (mm) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2P | 3P | 4 P |  | 2P | 3 P | 4P |
| A | 190 | 225 | 265 | A | 197 | 236 | 275 |
| B | 160 | 195 | 235 | B | 167 | 206 | 245 |
| C | 36 |  |  | C | 38.5 |  |  |
| D | 36 |  |  | D | 38.5 |  |  |
| E | 16 |  |  | E | 16.5 |  |  |
| F | 20 |  |  | F | 22 |  |  |
| G | 3 |  |  | G | 4 |  |  |

AC Control sequence


| Part Name |  | Operation Terminal) |  |
| :---: | :---: | :---: | :---: |
| $A C$ | $A$ Close Coil | $A 1, A 2$ | " $A$ " Power Terminal |
| $B C$ | $B$ Close Coil | $B 1, B 2$ | " $B$ " Power Terminal |
| $A U X$ | Auxiliary Switch |  |  |
| $A X, B X$ | Control switch |  |  |

type

## Automatic Transfer Switches

## Application scope

Electromagnetic operation, paired with an energy-saving design supported by transient excitation, guarantees reliable power. TN type automatic power transfer switches are highly suitable for environments such as factories, construction sites, and apartment complexes that demand substantial power
 sources and necessitate seamless switching between power sources via the "OFF" position.

## Salient features

- Excellent swithching performance and unfailing operation function.
- Most suitable for emergency power facility which is neutral position.
- The molded breaking component, completely sealed, not only prevents electric shock but also guards against electric accidents caused by foreign substances.
- The operation sequence supports both AC and DC power sources.
- Ensures safety under varying flow-current conditions, with minimized operating current maximizing flow current performance.
- Robust protection is provided through a latch structure.

Features a double throw type design for enhanced functionality.

## Image and structure



## Selection table

| Type |  | HK-100/125TN | HK-200/250TN |
| :---: | :---: | :---: | :---: |
| Rated operational current, In |  | 100/125A | 200/250A |
| Rated Operational Voltage, Ue |  | AC600V, DC125V |  |
| Rated Insulation Voltage, Ui |  | 690 V |  |
| Impulse Withstand Voltage, Uimp |  | 8kV |  |
| No. of Pole |  | 2, 3, 4 |  |
| Powercable connection method |  | Front bus bar connection |  |
| Reference Standard |  | IEC 60947-6-1 / UL1008 |  |
| Rated short-time withstand current, Icw |  | 5 kA | 7kA |
| Rated short-circuit making capacity, Icm |  | 5 kA | 7kA |
| Switch capacity | Class | AC3, DC1 |  |
| Life time | Electric | 5000 time |  |
|  | Mechanic | 10000 time |  |
| Switching frequency | time/h | 150 time/h |  |
| Switching sequence |  | $A \leftrightarrow B, A \leftrightarrow O F F \leftrightarrow B$ |  |
| Operating Time | Break(Opening) | $\leq 30 \mathrm{~ms}$ |  |
|  | Make Closing | $\leq 60 \mathrm{~ms}$ |  |
|  | Make delay(Off) | $\leq 30 \mathrm{~ms}$ |  |
| Operating Voltage \& Current | AC110/120V | 20A |  |
|  | AC220/240V | 10A |  |
| Control voltage | Max | 110\% Rated operating voltage |  |
|  | Min | 85\% Rated operating voltage |  |
| Withstand Voltage for Main circuit |  | 2500V/60s |  |
| Withstand Voltage for Control circuit |  | $1500 \mathrm{~V} / 60 \mathrm{~s}$ |  |
| Weight | 2P | 5 kg | 6 kg |
|  | 3P | 6.5 kg | 8kg |
|  | 4P | 8kg | 9.5 kg |
| Dimensions (WxLxH) | 2P | $220 \times 120 \times 215 \mathrm{~mm}$ |  |
|  | 3P | $257 \times 120 \times 215 \mathrm{~mm}$ |  |
|  | 4P | $294 \times 120 \times 215 \mathrm{~mm}$ |  |

## Selection table



| HK-800TN | HK-1000/1250TN | HK-1600TN | HK-2000/2500TN | HK-3000/3200TN |
| :---: | :---: | :---: | :---: | :---: |
| 800A | 1000/1250A | 1600A | 2000/2500A | 3000/3200A |
| AC600V, DC125V |  |  | AC690V, DC250V |  |
| 690 V |  |  | 800V |  |
| 8kV |  |  |  |  |
| 3, 4 |  |  |  |  |
| Rear bus bar connection |  |  |  |  |
| IEC 60947-6-1 / UL1008 |  |  |  |  |
| 16kA | 25kA | 32kA | 50kA |  |
| 16kA | 25kA | 32kA | 50kA |  |
| AC3, DC1 |  |  | AC3, DC1 |  |
| 5000 time |  |  | 3000 time |  |
| 10000 time |  |  | 5000 time |  |
| 150 time/h |  |  | 100 time/h |  |
| $\mathrm{A} \leftrightarrow \mathrm{B}, \mathrm{A} \leftrightarrow \mathrm{OFF} \leftrightarrow \mathrm{B}$ |  |  |  |  |
| $\leq 30 \mathrm{~ms}$ |  | $\leq 30 \mathrm{~ms}$ | $\leq 35 \mathrm{~ms}$ |  |
| $\leq 60 \mathrm{~ms}$ |  | $\leq 130 \mathrm{~ms}$ | $\leq 150 \mathrm{~ms}$ |  |
| $\leq 30 \mathrm{~ms}$ |  | $\leq 30 \mathrm{~ms}$ | $\leq 30 \mathrm{~ms}$ |  |
| 24A |  | 30A | 35A |  |
| 12A |  | 15A | 18A |  |
| 110\% Rated operating voltage |  |  |  |  |
| 85\% Rated operating voltage |  |  |  |  |
| 2500V/60s |  |  | 3000V/60s |  |
| 1500V/60s |  |  | 1500V/60s |  |
| 14 kg | 22 kg | 24 kg | 50 kg | 84 kg |
| 16kg | 26 kg | 28 kg | 60kg | 100kg |
| $344 \times 184 \times 241$ mm | $417 \times 182 \times 270 \mathrm{~mm}$ | $457 \times 264 \times 380 \mathrm{~mm}$ | $500 \times 412 \times 465 \mathrm{~mm}$ |  |
| $405 \times 184 \times 241 \mathrm{~mm}$ | $502 \times 182 \times 241 \mathrm{~mm}$ | $540 \times 264 \times 380 \mathrm{~mm}$ | $640 \times 412 \times 465 \mathrm{~mm}$ |  |

## Dimensions

## Front type 100A~250A



Front View


Side View

| 100A | $(\mathrm{mm})$ |  |  |
| :---: | ---: | ---: | ---: |
| $\sim 250 \mathrm{~A}$ | 2 P | 3 P | 4 P |
| A | 220 | 257 | 294 |
| B | 116 | 153 | 190 |

Front type 400A~500A

| 400A | $(\mathrm{mm})$ |  |
| :---: | :---: | :---: |
| $\sim 500 \mathrm{~A}$ | $3 P$ | 4 P |
| A | 286 | 332 |
| $B$ | 182 | 228 |



## Dimensions

## Front type 630A



Front View

## Back type 800A



Front View


Bottom View


| 600 A |  | $(\mathrm{~mm})$ |
| :---: | ---: | ---: |
| $\sim 800 \mathrm{~A}$ | 3 P | 4 P |
| A | 344 | 405 |
| $B$ | 226 | 287 |
| C | 189 | 250 |



## Dimensions

## Back type 1000A~1250A



## Back type 1600A



Front View



Side View


Bottom View

## Dimensions

Back type 2000A~3200A 3P


Front View


2000~2500A Bottom View


3200A Bottom View


Side View


2000~2500A Back View


3200A Back View

## Dimensions

Back type 2000A~3200A 4P


Front View


2000~2500A Bottom View


3200A Bottom View


Side View


2000~2500A Back View


3200A Back View

## Application scope

Automatic Transfer Breaker operates on the principle of electromechanical energy, compatible with ACB operation.

Automatic Transfer Breaker - ATB type possesses the capability to transmit power without disrupting the power supply to the load. It is designed to withstand substantial switching currents, making it particularly suitable for
 critical loads found in environments such as airports, hospitals, institutes, and high-tech industrial plants.

## Salient features

- Based on IEC 60947-6-1, 2 AC-33B become 1 ATB combine
- Compact and light design products with high breaking capacity
- Closed transient transfer switch and bypass functional products
- Sychronizing operation available between genset or between genset and main power
- Breaker type contact structure
- Protection relay (OCR, GR) available
- Safety operation and movement applying high quality arc chamber at the breaking component
- Safety flow-current condition, minimized operating current maximizes function of flow current performance


## Image and structure



## Selection table

| Type |  | ATB-06EX | ATB-08EX | ATB-10EX | ATB-12EX |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Rated operational current, In |  | 630A | 800A | 1000A | 1250A |
| Rated Operational Voltage, Ue |  | 690 V |  |  |  |
| Rated Insulation Voltage, Ui |  | 1000V |  |  |  |
| Impulse Withstand Voltage, Uimp |  | 12kV |  |  |  |
| No. of Pole |  | 3, 4 |  |  |  |
| Neutral Pole |  | Overlapping Contact |  |  |  |
| Power cable connection method |  | Front bus bar connection |  |  |  |
| Reference Standard |  | IEC 60947-6-1 |  |  |  |
| Rated short-time withstand current, Icw | at 460 V | 50kA |  |  |  |
| Rated short-circuit making capacity, Icm | at 460 V | 110kA |  |  |  |
| Life time | Electric | 3000 time |  |  |  |
|  | Mechanic | 10000 time |  |  |  |
| Max. Trip time |  | 40 ms |  |  |  |
| Max. Closing time |  | 60 ms |  |  |  |
| Time of Motor Charging [Max.] |  | 10s |  |  |  |
| Control voltage | Max | 110\% Rated operating voltage |  |  |  |
|  | Min | 85\% Rated operating voltage |  |  |  |
| Withstand Voltage for Main circuit |  | 3000V/60s |  |  |  |
| Withstand Voltage for Control circuit |  | 1500V/60s |  |  |  |
| Weight | 3P - Fixed | 100 | 105 |  | 110 |
|  | 4P-Fixed | 110 | 115 |  | 120 |
|  | 3P - Drawable | 135 | 142 |  | 150 |
|  | 4P - Drawable | 150 | 155 |  | 162 |
| Dimensions (WxLxH) | 3P - Fixed | $517 \times 578 \times 610$ |  |  |  |
|  | 4P-Fixed | $517 \times 578 \times 610$ |  |  |  |
|  | 3P - Drawable | $572 \times 690 \times 665$ |  |  |  |
|  | 4P - Drawable | $572 \times 690 \times 665$ |  |  |  |


| ATB-16EX | ATB-20EX | ATB-25EX | ATB-32EX | ATB-40EX | ATB-50EX | ATB-63EX |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1600A | 2000A | 2500A | 3200A | 4000A | 5000A | 6300A |
| 690 V |  |  |  |  |  |  |
| 1000 V |  |  |  |  |  |  |
| 12kV |  |  |  |  |  |  |
| 3, 4 |  |  |  |  |  | 3 |
| Overlapping Contact |  |  |  |  |  |  |
| Front bus bar connection |  |  |  |  |  |  |
| IEC 60947-6-1 |  |  |  |  |  |  |
| 50kA | 65kA |  |  | 85kA |  | 100kA |
| 110kA | 143kA |  |  | 187kA |  | 220kA |
| 3000 time |  |  |  | 3000 time |  |  |
| 10000 time |  |  |  | 6000 time |  |  |
| 40 ms |  |  |  | 50 ms |  |  |
| 60 ms |  |  |  | 80 ms |  |  |
| 10s |  |  |  | 10s |  |  |
| 110\% Rated operating voltage |  |  |  |  |  |  |
| 85\% Rated operating voltage |  |  |  |  |  |  |
| $3000 \mathrm{~V} / 60 \mathrm{~s}$ |  |  |  |  |  |  |
| 1500V/60s |  |  |  |  |  |  |
| 130 | 140 | 150 | 160 | 190 | 190 | 205 |
| 140 | 150 | 160 | 170 | 255 | 255 | 270 |
| 176 | 190 | 203 | 216 | 330 | 330 | - |
| 190 | 203 | 216 | 230 | 435 | 435 | - |
| $517 \times 578 \times 610$ | $517 \times 578 \times 610$ |  |  | $717 \times 633 \times 610$ |  | $717 \times 633 \times 610$ |
| $517 \times 578 \times 610$ | $617 \times 578 \times 610$ |  |  | $917 \times 633 \times 610$ |  | $917 \times 633 \times 610$ |
| $572 \times 690 \times 665$ | $572 \times 690 \times 665$ |  |  | $772 \times 740 \times 665$ |  | - |
| $572 \times 690 \times 665$ | $672 \times 690 \times 665$ |  |  | $972 \times 740 \times 665$ |  | - |

Dimensions
630~1600A Fixed Type


Vertical



A BUS BAR Dimensions

| $(\mathrm{mm})$ | $630 \sim 800 \mathrm{~A}$ |  | 1000A |  | 1250A |  | 1600 A |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $3 P$ | 4 P | 3 P | 4 P | 3 P | 4 P | 3 P | 4 P |
| A | 8 |  | 10 |  | 12 |  | 15 |  |



Dimensions
630~1600A Drawable Type


Vertical

$\Delta$ Front


A BUS BAR Dimensions

| $(\mathrm{mm})$ | $630 \sim 800 \mathrm{~A}$ |  | 1000 A |  | 1250 A |  | 1600 A |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 3 P | 4 P | 3 P | 4 P | 3 P | 4 P | 3 P | 4 P |
| A | 8 |  | 10 |  | 12 |  | 15 |  |

Horizontal

$\triangle$ Front

## Dimensions

2000~3200A Fixed Type


Horizontal

Front

$\Delta$ Front

## Dimensions

2000~3200A Drawable Type


2000~3200A Fix / Draw
A BUS BAR Dimensions

| $(\mathrm{mm})$ | 2000A |  | 2500A |  | 3200A |  |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: |
|  | $3 P$ | $4 P$ | $3 P$ | $4 P$ | $3 P$ | $4 P$ |
| A | 572 | 672 | 572 | 672 | 572 | 672 |
| B | 15 |  | 20 |  | 25 |  |



Horizontal

Front


Dimensions
4000~5000A 3P Fixed Type


Dimensions
4000~5000A 3P Drawable Type


Dimensions
4000~5000A 4P Fixed Type


Dimensions
4000~5000A 4P Drawable Type


## Dimensions

## 6300A 3P Fixed Type

Front View


Horizontal

## Side View

## Bottom View

## Front



Front


## Dimensions

## 6300A 4P Fixed Type

## Front View




6300A Fix

- BUS BAR Dimensions


## Side View

Front


## Bottom View



| Part Name |  |  |  | Operation Terminal |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| M | Charging Motor | ACC | "A"Side ClosingCoil | 01,02 | "A"Side Charging Motor Power Terminal | 09,10 | "B"Side Input Power Terminal |
|  |  | ATC | "A"Side Trip Coil | 03, 04 | "B"Side Charging Motor Power Terminal | 11,12 | "B"Side Trip Power Terminal |
|  |  | BCC | "B"Side ClosingCoil | 05,06 | "A"Side Input Power Terminal | 13~20 | "A"Side Auxiliary Contact Terminal |
|  |  | BTC | "B"Side Trip Coil | 07,08 | "A"Side Trip Power Terminal | 31~38 | "B"Side Auxiliary Contact Terminal |

## DC Control sequence



Hanpro

## Application scope

Controller - Hanpro1000 is used to control Automatic Transfer Switches N type and TN type.

Controller - Hanpro1000 displays intuitively, is easy to use, and has an OFF mode when switching between two power sources to ensure safety for ATS.


## Salient features

- Off delay for Arc remove
- Malfunction prevent when transfering $A$ to $B$ (or $B$ to $A$ )
- Micro CPU type
- Operation Sequence : A $\leftrightarrow$ OFF $\leftrightarrow B / B \leftrightarrow O F F \leftrightarrow A$


## Description

| Model | Hanpro |
| :--- | :--- |
| System Voltage | AC220V |
| Rated frequency | $50 \mathrm{~Hz}, 60 \mathrm{~Hz}$ |
| Transformer Burden | $3 \mathrm{VA}[\mathrm{AC}]$ |
| Insulation | $1.5 \mathrm{kV} / 1 \mathrm{~min}$ |
| Ambient Temperature $\left({ }^{\circ} \mathrm{C}\right)$ | $-20 \sim+60$ |

## Image and structure



## Display and functions


(1) A power source lamp
(2) B power source lamp
(3) (4) Time delay display lamp
(5) Normal power "ON" delay timer
(6) Emergency power "ON" delay timer
(7) A source "ON" push button
(8) B source "ON" push button
(9) Auto, Manual selection button.
(Press and hold the manual button for more than 3 seconds to trip the switch.)
(10) Status display flickering lamps

Dimensions



DIN 96


ANSI 4

## ATS TN type connecction diagram

| Part Name |  |  |  |
| :---: | :--- | :---: | :--- |
| CC | Closing Coil | AX, BX | Input Limit Switch |
| SC | Selection Coil | SS | Selection Switch |
| TC | Trip Coil | TS1-TS4 | Trip Control Switch |
| Si | Silicon Rectifier | AUX | Auxiliary Contact Switch |
| Operation Terminal |  |  |  |
| A1-A2 | "A" Side Input Power Terminal | a1~a4 | "A" Side Auxiliary Contact Terminal |
| B1-B2 | "B" Side Input Power Terminal | b1~b4 | "B" Side Auxiliary Contact Terminal |
| AT1-AT2 | "A" Side Trip Power Terminal |  |  |
| BT1-BT2 | "B"Side Trip Power Teminal |  |  |



## ATS N type connecction diagram

| Part Name |  | Operation Terminal |  |
| :---: | :---: | :---: | :---: |
| AC | "A" Side Closing Coil | A1-A2 | "A" Side Input Power Terminal |
| BC | "B" Side Closing Coil | $\mathrm{B} 1-\mathrm{B} 2$ | "B" Side Input Power Terminal |
| Si | Silicon Rectifier | $\mathrm{C1}, \mathrm{a} 3, \mathrm{a} 4$ | "A" Side Auxiliary Terminal 2 a |
| AUX | Auxiliary Contact Switch | $\mathrm{C} 2, \mathrm{~b} 3, \mathrm{~b} 4$ | "B" Side Auxiliary Terminal 2 b |



ATbS

## Automatic Transfer Switches Controller

## Application scope

The ATbS C55 dual-power ATS controller is a comprehensive module for dual-power transfer. It comes equipped with configurable functions, automatic measurement capabilities, an LCD display, and digital communication.

By integrating digital intelligence and networking, it automates measurement and control processes, reducing the potential for human errors
 during operation. Designed for versatility, the ATbS C55 is compatible with non-breaking, one-breaking, and two-breaking switches.

## Salient features

- System type can be set to: Mains - Generator, Generator - Mains, Mains - Mains
- Auto/Manual mode transfer function: in manual mode, user can control the switch to close or open
- Commissioning can be done on site manually to execute genset start/stop operations
- 2-way N wire isolated design
- AC supply power can be phase voltage (L, N), supply range: (170~277)V
- Suitable for various AC system types (3-phase 4-wire, single-phase 2-wire, and 2-phase 3-wire)
- Breaker close output can be set to pulse or continuous output
- Over/under voltage, over/under frequency, loss of phase reverse phase sequence function


## Image and structure



## Description

| Operating voltage | $170 \sim 277 \mathrm{~V}$ |
| :--- | :--- |
| AC voltage input | $3 \mathrm{P} 4 \mathrm{~W}(170 \sim 277 \mathrm{~V}$ ph-N $) / 1 \mathrm{P} 2 \mathrm{~W}(170 \sim 277 \mathrm{~V})$ |
| Rated frequency | $50 / 60 \mathrm{~Hz}$ |
| Control | A<-> B or A <-> OFF <-> B or 2 ACB or 2 Contactor |
| System type set | A Mains B Gen / A Gen B Mains / A Mains B Mains |
| Switch type | Two Breaking / One Breaking / No Breaking |
| AC system | AC system: 3P4W / 3P3W / 2P3W / 1P2W |
| Auxiliary output setting | Yes |
| Auxiliary input setting | Yes |
| Function | Over/under voltage, over/under frequency, reverse phase sequence loss |
| Close / Open relay capacity | $8 \mathrm{CA} / 250 \mathrm{VAC}$ |

## Main function description



| Key | Function | Description |
| :--- | :--- | :--- |
| @/ A | Manual/Auto Key | Used to transfer between Manual or Auto mode. |
| Active in manual mode; Press to close the A power switch and supply the load |  |  |
| with A power. |  |  |

ATS TN type connecction diagram


ATS N type connecction diagram


ATS connection diagram from 2ACB


MCH: Energy-saving motor; MN: Undervoltage trip; MX: Open coil; XF: Close coil

## Dimensions




CUTOUT

## B08 <br> ELECTRIC <br> REALVALUE F○RLIFE

