ISO 9001

ISO 14001 · ISO 45001

ISO ENERGY

Manufacturer:	Shanghai Mitsubishi Elevator Co., Ltd.
Location:	No. 887 Middle Huaihai Road, Shanghai, P.R.China
Type:	K type
Serial number:	13K5F30-184-8

Low energy consumption

A+++	≤ 55%	**A +++**
A++	≤ 65%	
A+	≤ 85%	
A	≤ 70%	
B	≤ 90%	
C	≤ 95%	
D	≤100%	
E	>100%	

High energy consumption

Power consumption in no load condition: **≤ 1,36 kW**

Operation mode: Power off / Auto start / Slow speed

上海三菱电梯
SHANGHAI MITSUBISHI ELEVATOR

Smart K - II

The Second Generation K Series Smart Escalator

上海三菱电梯有限公司
SHANGHAI MITSUBISHI ELEVATOR CO.,LTD.

www.smec-cn.com

Smart *K* - Ⅱ

The Second Generation K Series Smart Escalator

Leading the Future with Wisdom

· Identify dangerous behaviors to protect passengers' safety

· Real−time environmental perception and accurate control of equipment

· Monitor operation status to improve management efficiency

Safe and Reliable

· Standard 20+ safety functions build an all−round protection network

· Leaving step protection of the whole journey on both sides eliminates the abnormal lifting of steps in the operation

· Dual guide of rail and skirt is adopted to ensure the stable operation of the steps

Flexible Response

· Diversified specification selection satisfies different use requirements

· Rich decoration configuration perfectly matches with different buildings

· Optimized civil sizes improve the space utilization

Comfortable and Energy−saving

· The highest level of ride quality provides a more comfortable ride experience

· The whole series adopts LED lighting, which is green, low−carbon and environmentally friendly

· A variety of standby operation modes are provided, and intelligent passenger sensing device can be selected to save energy deeply
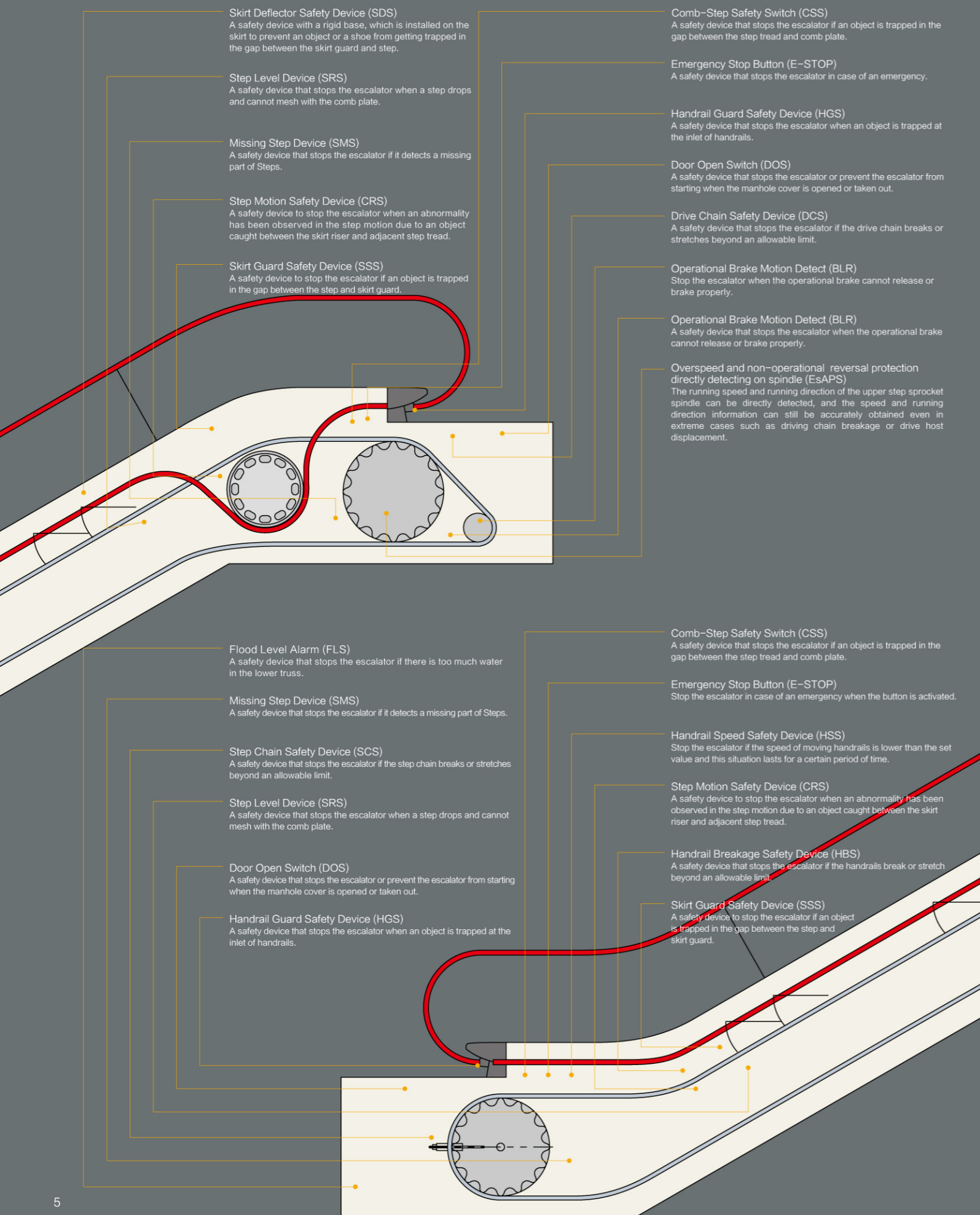
SmartK - II

Product Intelligence

○ Identification and warning of passengers' dangerous behaviors

- Ride the escalator with a stroller *
  Identify whether there is any behavior of riding the escalator with a stroller through the intelligent escalator terminal installed at the entrance of the escalator, and if yes, give an audible and visual warning.

- Children playing in the handrail inlet area *
  Detect the behavior of playing in the inlet area of the handrail and provide an audible and visual warning.

○ Real−time environmental perception and accurate control of equipment

- Self−lubrication adapting to ambient rainfall *
  The fully outdoor escalator automatically adjusts the refueling strategy according to the environmental rainfall to improve the lubrication efficiency.

- Lighting control adapting to ambient light illumination *
  The decoration lighting is automatically controlled according to the ambient light illumination and the environment where the escalator is located.

- Voice broadcast adapting to ambient volume *
  The voice broadcast volume is automatically adjusted according to the ambient volume, which improves the overall comfort of users.

- Heating strategy adapting to ambient temperature
  According to the ambient temperature, the truss, comb plate and handrail heaters are controlled separately to ensure the safety of operation in low temperature environment.

Remark:
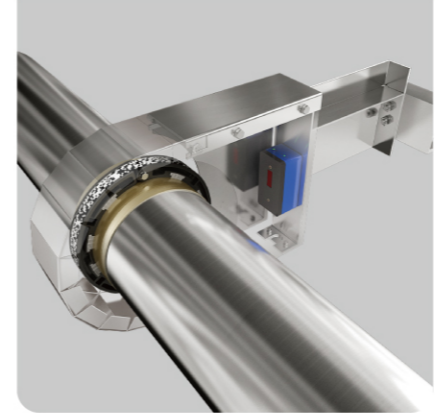* Need to configure intelligent escalator terminal

Service Intelligence

○ Automatic start/stop at the preset time *1
  According to the user's preset operation start and end time, it provides safe automatic start/stop service under the condition of ensuring no passengers, thus eliminating the trouble of manual operation one by one, and saving time and effort.

○ Escalator and passenger status monitoring and active intervention *2
  With artificial intelligence technology, the monitoring system is upgraded from "passive tracing" to "active intervention", which can actively identify the abnormal situation of escalator or abnormal behaviors of passengers, alarm the local escalator and the monitoring room in time, remind relevant personnel to take the initiative to intervene, and speed up the emergency response.

○ Passenger spectrum and passenger flow analysis service *3
  Statistics and analysis of the load on the escalator provide reference for the dynamic adjustment of the maintenance plan.

○ Intelligent operation and maintenance report service *3
  Collect escalator operation data in real time, and provide users with escalator group operation status reports regularly to help users understand the escalator situation more comprehensively.

Remark:
*1: It is recommended to separately order a SmartEye monitoring system, which can set the time uniformly for all escalators in the monitoring room, thus improving management efficiency.
*2: It is necessary to separately order a SmartEye monitoring system, which can realize identification and warning of more passenger abnormal behaviors such as falling, reverse movement and congestion.
*3: If it is necessary to configure, please consult Shanghai Mitsubishi Elevator Co., Ltd.

SmartK-Ⅱ

Left diagram labels

Skirt Deflector Safety Device (SDS)
A safety device with a rigid base, which is installed on the skirt to prevent an object or a shoe from getting trapped in the gap between the skirt guard and step.

Step Level Device (SRS)
A safety device that stops the escalator when a step drops and cannot mesh with the comb plate.

Missing Step Device (SMS)
A safety device that stops the escalator if it detects a missing part of Steps.

Step Motion Safety Device (CRS)
A safety device to stop the escalator when an abnormality has been observed in the step motion due to an object caught between the skirt riser and adjacent step tread.

Skirt Guard Safety Device (SSS)
A safety device to stop the escalator if an object is trapped in the gap between the step and skirt guard.

Comb-Step Safety Switch (CSS)
A safety device that stops the escalator if an object is trapped in the gap between the step tread and comb plate.

Emergency Stop Button (E-STOP)
A safety device that stops the escalator in case of an emergency.

Handrail Guard Safety Device (HGS)
A safety device that stops the escalator when an object is trapped at the inlet of handrails.

Door Open Switch (DOS)
A safety device that stops the escalator or prevent the escalator from starting when the manhole cover is opened or taken out.

Drive Chain Safety Device (DCS)
A safety device that stops the escalator if the drive chain breaks or stretches beyond an allowable limit.

Operational Brake Motion Detect (BLR)
Stop the escalator when the operational brake cannot release or brake properly.

Operational Brake Motion Detect (BLR)
A safety device that stops the escalator when the operational brake cannot release or brake properly.

Overspeed and non-operational reversal protection directly detecting on spindle (EsAPS)
The running speed and running direction of the upper step sprocket spindle can be directly detected, and the speed and running direction information can still be accurately obtained even in extreme cases such as driving chain breakage or drive host displacement.

Flood Level Alarm (FLS)
A safety device that stops the escalator if there is too much water in the lower truss.

Missing Step Device (SMS)
A safety device that stops the escalator if it detects a missing part of Steps.

Step Chain Safety Device (SCS)
A safety device that stops the escalator if the step chain breaks or stretches beyond an allowable limit.

Step Level Device (SRS)
A safety device that stops the escalator when a step drops and cannot mesh with the comb plate.

Door Open Switch (DOS)
A safety device that stops the escalator or prevent the escalator from starting when the manhole cover is opened or taken out.

Handrail Guard Safety Device (HGS)
A safety device that stops the escalator when an object is trapped at the inlet of handrails.

Comb-Step Safety Switch (CSS)
A safety device that stops the escalator if an object is trapped in the gap between the step tread and comb plate.

Emergency Stop Button (E-STOP)
Stop the escalator in case of an emergency when the button is activated.

Handrail Speed Safety Device (HSS)
Stop the escalator if the speed of moving handrails is lower than the set value and this situation lasts for a certain period of time.

Step Motion Safety Device (CRS)
A safety device to stop the escalator when an abnormality has been observed in the step motion due to an object caught between the skirt riser and adjacent step tread.

Handrail Breakage Safety Device (HBS)
A safety device that stops the escalator if the handrails break or stretch beyond an allowable limit.

Skirt Guard Safety Device (SSS)
A safety device to stop the escalator if an object is trapped in the gap between the step and skirt guard.
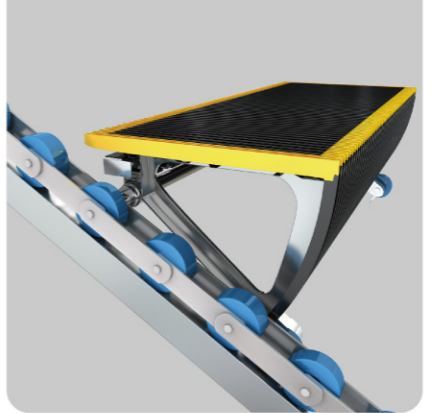
EsAPS Escalator Absolute Position Sensing System

The running speed and running direction of the upper step sprocket spindle can be directly detected, and the speed and running direction information can still be accurately obtained even in extreme cases such as driving chain breakage or drive host displacement.

Step Band Double-Guide

The entire travel of the leaving side of the step band adopts a double-guide structure, which makes the steps run more smoothly.

Leaving Step Anti-jump
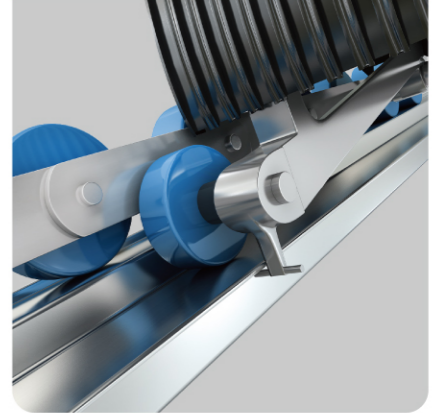
Mitsubishi's proprietary step band guide rail structure which realizes anti-jumping of the leaving steps and thus provides better safety and reliability.

One-to-one Fault Detection of Safety Devices

Each safety device corresponds to one error code, thus improving the speed of troubleshooting and the efficiency of maintenance and repair. Without opening the floor slab/access deck and affecting the normal operation of the escalator, the operation and fault information of the escalator can be check using a special mobile phone applet.

## Handrail intelligent ultraviolet sterilization and disinfection

Hidden design, so as to prevent ultraviolet rays from leaking and ensure passengers' safety; Intelligent control, so as to intelligently schedule sterilization and disinfection work according to the running state of the escalator; Non-contact design, so as to avoid secondary pollution and more comprehensive sterilization and disinfection .

Multi-Functional Operating Panel

An operating panel in Chinese and English can be installed at the landing areas of the escalator, which is used to set functions and check the faults, thus improving management efficiency.

Handrail Inlet Design
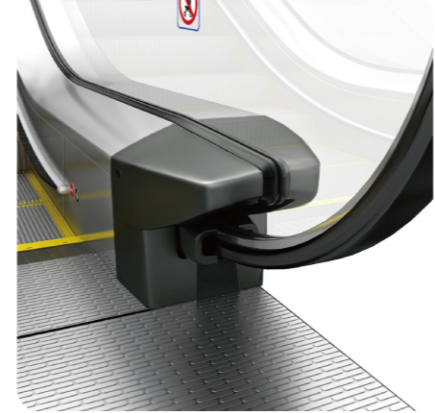
Continues Mitsubishi's hidden handrail inlet design, which greatly reduces the risk of objects getting trapped; a long and soft inlet guard is installed to provide multiple protection.
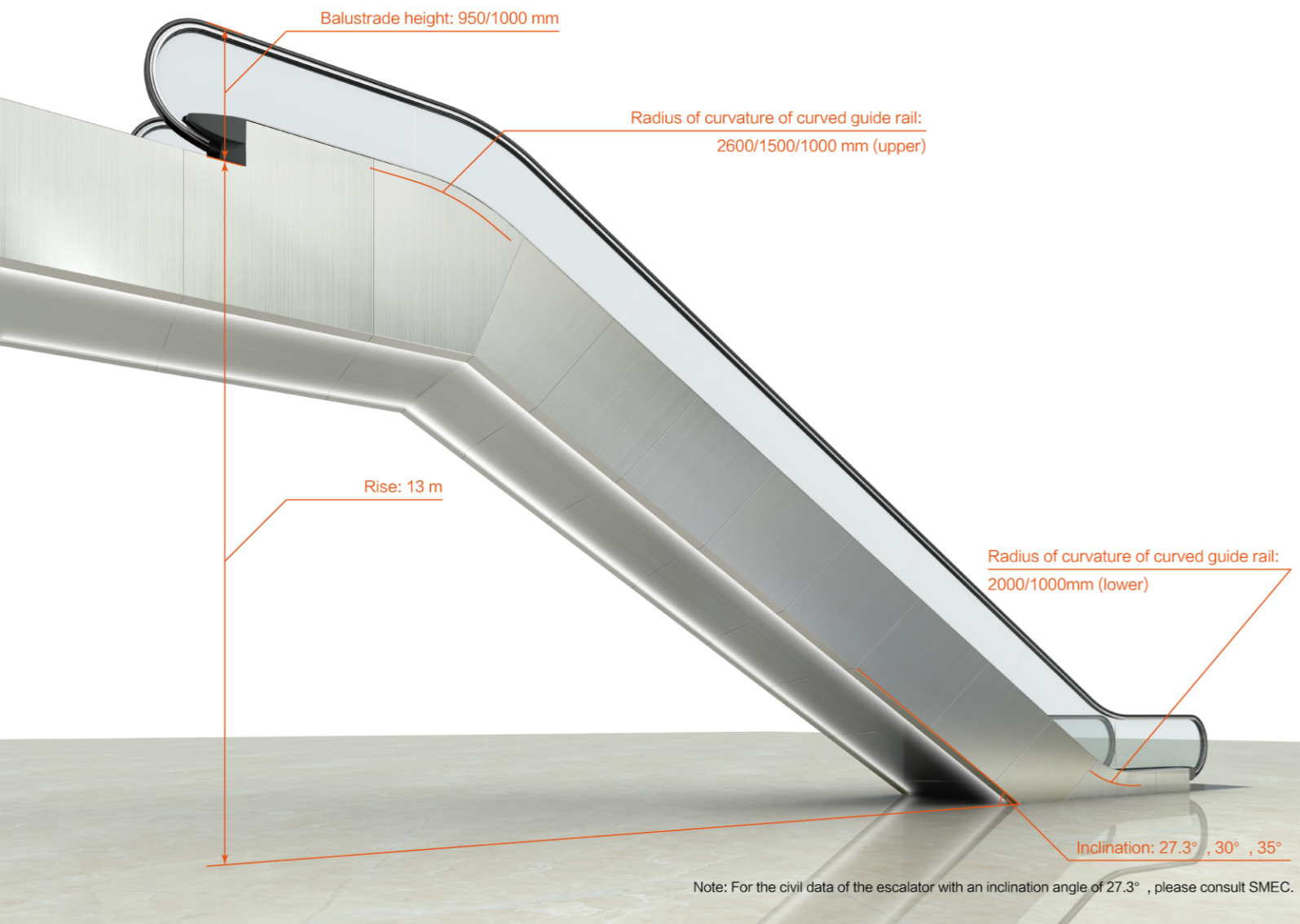
Skirt Deflector Safety Device
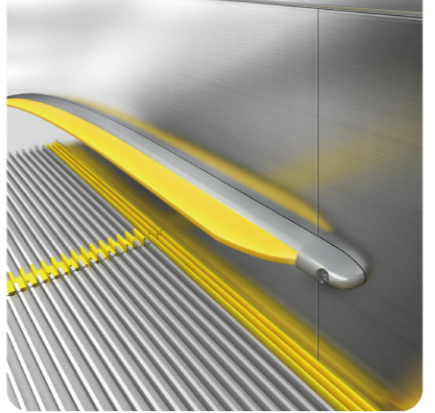
A safety device which prevents passengers stand too close to the edge of a step and prevent their feet from getting trapped in the gap between the skirt guard and step.

Emergency Stop Button

In case of an emergency, persons nearby or passengers can press the emergency stop button to stop the escalator manually.

Balustrade height: 950/1000 mm

Radius of curvature of curved guide rail:
2600/1500/1000 mm (upper)

Rise: 13 m

Radius of curvature of curved guide rail:
2000/1000mm (lower)

Inclination: 27.3°, 30°, 35°

Note: For the civil data of the escalator with an inclination angle of 27.3°, please consult SMEC.

Item	Content			Description
Nominal Width Between Handrails(mm)	1200	1000	800	
Nominal width of steps	1000	800	600	
Models	KS−SB−II/KS−SBF−II			Transparent tempered glass panel, no under−handrail lighting, slim handrails
	KS−B−II/KS−BF−II			Transparent tempered glass panel, no under−handrail lighting, common handrails
	KS−LB−II/KS−LBF−II			Transparent tempered glass panel, under−handrail lighting
	KP−B−II/KP−BF−II			Hairline−finish stainless panel
Application	Commercial use			
	Airport			It complies with the requirements of GB16899−2011 for public transport escalators; if there are special requirements for the load, special confirmation is required.
Environment	Indoor			
	Outdoor, semi−outdoor			A roof must be provided
Drive System	Direct drive system			
	AC VVVF drive system			Bypass variable frequency is provided as standard, and fully variable frequency requires special confirmation.
Control Mode	ZECM−C(ZECM−BF−CM)/ZECM−C(ZECM−YD−CC)			
Power Supply	380V 50Hz 3−phase, 5−wire			Non−standard confirmation is required for other power supply specifications and frequency
Light Power Supply	220V 50Hz single−phase			
Handrail Height(mm)	950			Standard
	1000			Optional
Inclination	30° /27.3°			For the civil data of the escalator with an inclination angle of 27.3°, please consult SMEC.
	35°			Only for commercial use
Rise	1400～13000			nclination 30°
	1606～6000			Inclination 35°
	1285～13000			Inclination 27.3°
Rated Speed(m/s)	0.4			Optional for commercial use of inclination 30° and 35°, max. rise 10 m
	0.5			Standard, max. rise 13 m
	0.65			Optional for inclination 30° and 27.3°, max. rise 10 m
Horizontal Movement(mm)	800			Standard for commercial use and rise not exceeding 6 m; optional for rated speed 0.4 m/s and 0.5 m/s only
	1200			Standard for airport and rise not exceeding 6 m
	1600			Optional for commercial use and inclination 30° and 27.3°; optional for airport
Radius of Curvature of Curved Guide Rail (Upper)(mm)	1000			Only for commercial use
	1500/2600			
Radius of Curvature of Curved Guide Rail (Lower)(mm)	1000/2000			

2 horizontal steps

3 horizontal steps

4 horizontal steps

Awarded the top ride quality

Good by TÜV Rheinland

LED Lighting System

Full LED lighting system, including handrail lighting, skirt lighting, comb lighting and step bottom lighting, is adopted so as to comprehensively improve the environmental quality, protect the environment and save energy, and be safe and reliable.

### Intelligent Passenger Sensing Device

The intelligent sensor EsPDS with innovative Time of Flight technology is adopted. It can judge the movement trend of passengers, thus reducing the false start of escalators caused by passengers passing laterally, increasing the accuracy of passenger sensing and optimizing the energy-saving effect.

Bypass Inverter and Light-load Energy-saving Technology

At rated speed, automatically switch off the inverter and switch over to the working frequency grid to greatly extend the service life of the inverter. If the inverter has an unrecoverable fault, manually switch it to standby mode. If there is no passenger, automatically switch it to low speed or stop and standby mode; if under full load, feed back the regenerated energy to the grid to save energy.

Phase-locking Switch Technology

Mitsubishi's proprietary inverter is featured by modular design and small size; with sophisticated "active phase synchronization and phase-locking switch technology", it realizes smooth switch from variable frequency to working frequency and provides a more comfortable ride experience.
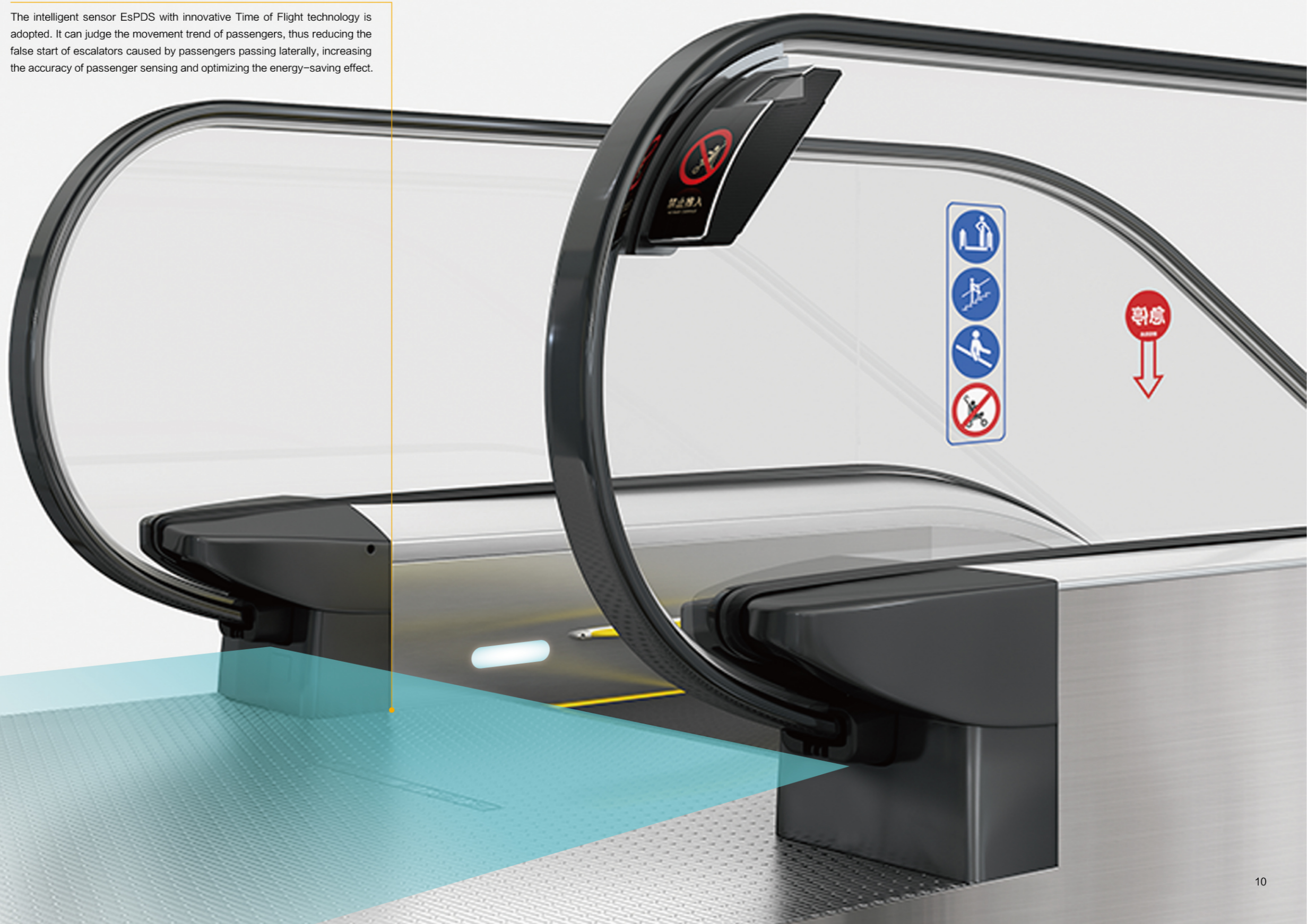
Interior Panel

Fully transparent rectangular glass interior panel

Handrail

Red PU (NT−Red)

Handrail Lighting

Milky white LED lighting

Step

Aluminum alloy step with yellow resin strips at three sides silver gray coating

Inner Deck and Outer Deck

Hairline−finish SUS

Skirt

Hairline−finish SUS

Operation Indicator

ZIN−02

Handrail Inlet

ZHE−02A black gray aluminum alloy

Floor Plate

Staggered slot type, patterned stainless steel

Handrail

NT−Black (Standard)	NT−Red (Optional)	NT−Belge (Optional)	NT−Blue (Optional)
NT−Gray (Optional)	NT−Charcoal (Optional)	NT−Brown (Optional)	NT−Green (Optional)

Balustrade
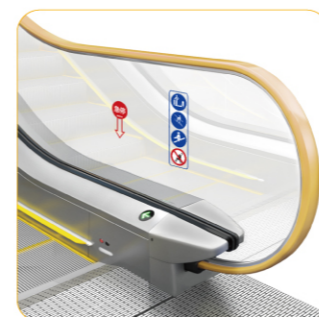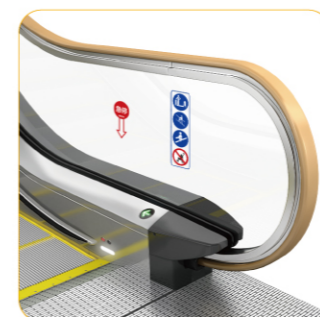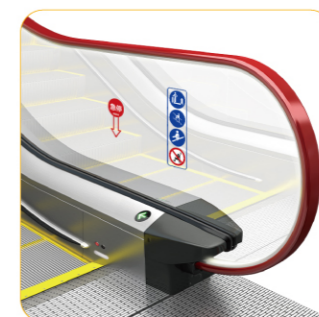
KS−SB−II / KS−SBF−II	KS−B−II / KS−BF−II	KS−LB−II / KS−LBF−II	KP−B−II / KP−BF−II

Skirt
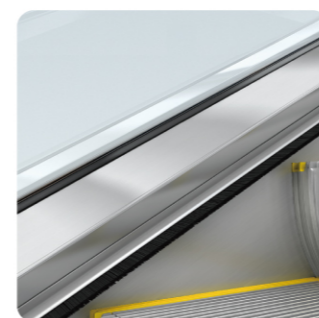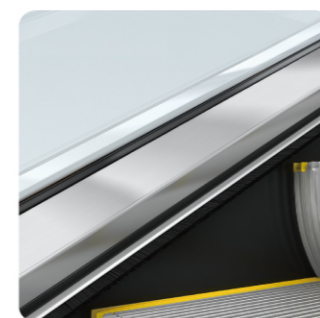
Hairline−finish SUS	Fluoridized SUS (black)

Comb
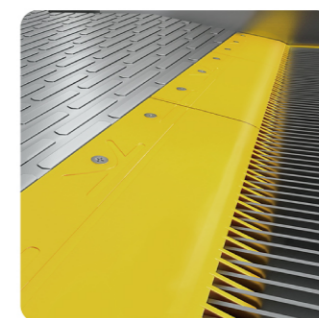
Yellow resin	Silver aluminum alloy

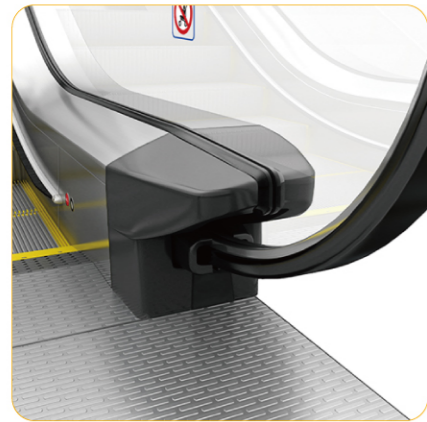# Decorative Components Customized Configurations
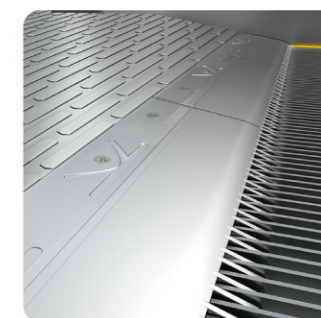
Handrail Inlet
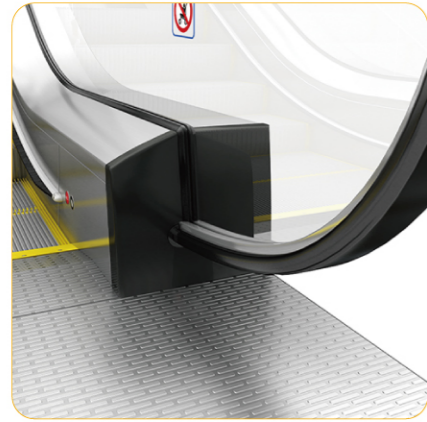
ZHE-01
Black gray resin square
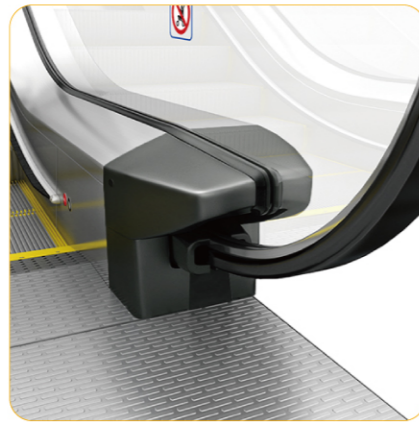Applicable to KS-SB-II/KS-SBF-II for indoor use
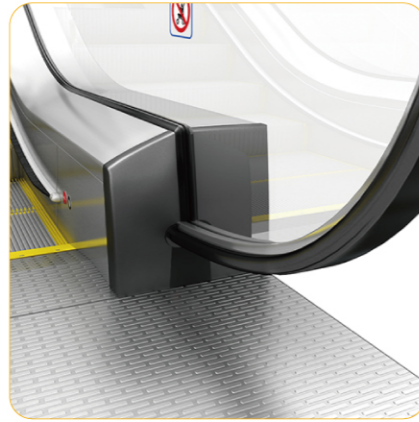
ZHE-01A
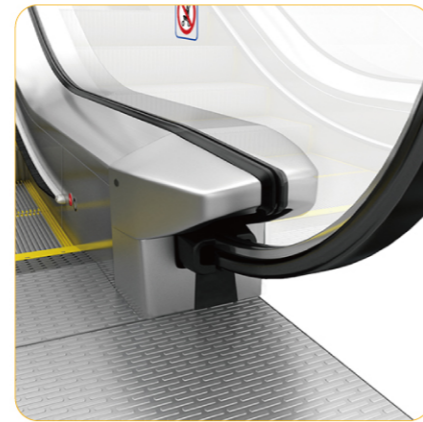Black gray aluminum alloy square
Applicable to KS-SB-II/KS-SBF-II
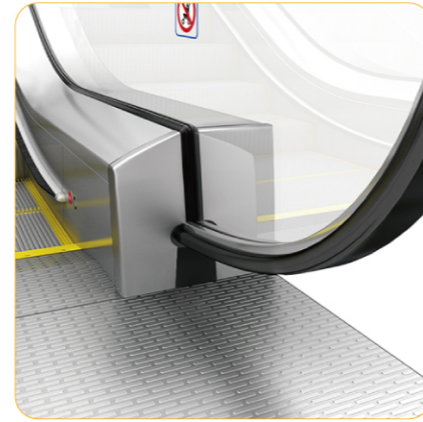
ZHE-01A
Silver gray aluminum alloy square
Applicable to KS-SB-II/KS-SBF-II

ZHE-02
Black gray resin streamlined
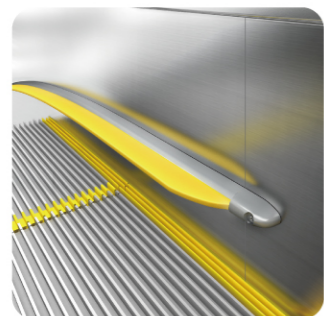Applicable to KS-SB-II/KS-SBF-II/KS-B-II/KS-BF-II/
KS-LB-II/KS-LBF-II

ZHE-02A
Black gray aluminum alloy streamlined
Applicable to KS-SB-II/KS-SBF-II/KS-B-II/KS-BF-II/
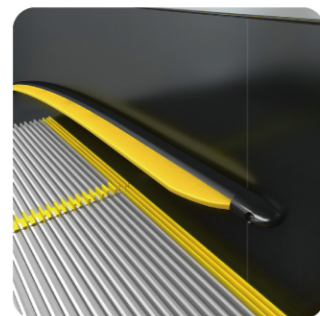KS-LB-II/KS-LBF-II

ZHE-02A
Silver gray aluminum alloy streamlined
Applicable to KS-SB-II/KS-SBF-II/KS-B-II/KS-BF-II/KS-LB-II/KS-LBF-II
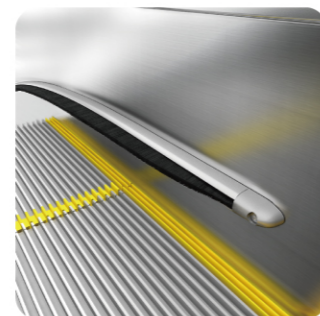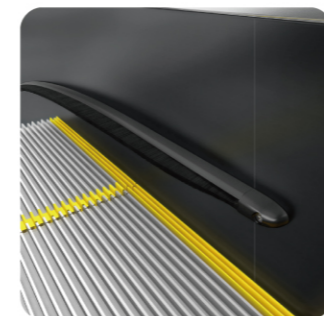Please contact SMEC for confirmation

Skirt Deflector Safety Device

Silver base with yellow cleat

Black base with yellow cleat
(with black fluoridized stainless steel skirting plate)

Silver base with black brush

Black base with black brush
(with black fluoridized stainless steel skirting plate)

Step

Aluminum alloy step
Yellow resin strips at three sides
Black gray coating

Aluminum alloy step
Yellow resin strips at three sides
Silver gray coating

SUS step(only for indoor use)
Yellow resin strip sat three sides
Black coating

All aluminum alloy step
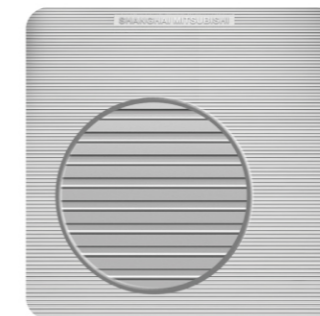No yellow resin strips
Black gray coating

All aluminum alloy step
No yellow resin strips
Silver gray coating

Floor Plate

ZCY-F134P
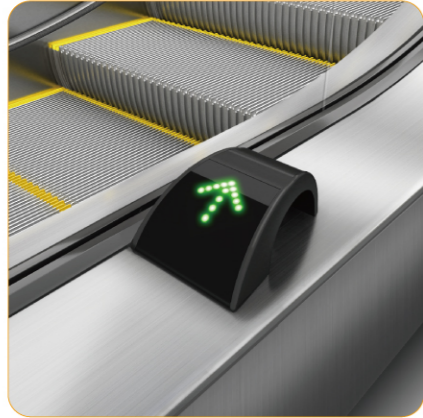Triangular type
Stainless steel

ZCY-F21P
Stripe type
Aluminum

ZCY-F12P
Staggered slot type
Stainless steel

ZCY-F02P
Staggered slot type
(with the groove coated)
Stainless steel

Decorative Components Customized Configurations

Operation Indicator

(inverter is of standard specifications in stop and standby mode, but optional for other modes)

ZIN-01
Outer deck arch RUN indicator, for indoor models only,
suitable for glass interior panels
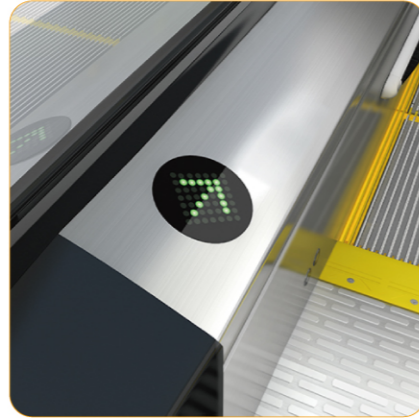
ZIN-02
Inner deck embedded RUN indicator,
suitable for glass interior panels

ZIN-03
Outer deck slope RUN indicator,
suitable for glass interior panels

ZIN-04
Newel balustrade RUN indicator,
suitable for stainless steel interior panels

Intelligent terminal operation indicator
Applicable when intelligent terminals are available
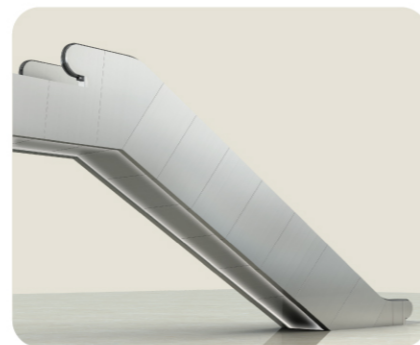
Exterior Decoration Panel

Material of exterior decoration panel: hairline finished stainless steel, coated steel plate, hairline finished titanium-plated stainless steel.
The color code is selected according to the decoration pallet of SMEC.
Other lighting modes can be selected.

The seam of the exterior decoration panel is
perpendicular to the running direction of the steps
No lighting
Railing type: glass interior panel
For KS-SB-II/KS-SBF-II/KS-LB-II/KS-LBF-II/KS-B-II/KS-BF-II

The seam of the exterior decoration panel
is perpendicular to the horizontal plane
Base plate down light lighting
Railing type: glass interior panel
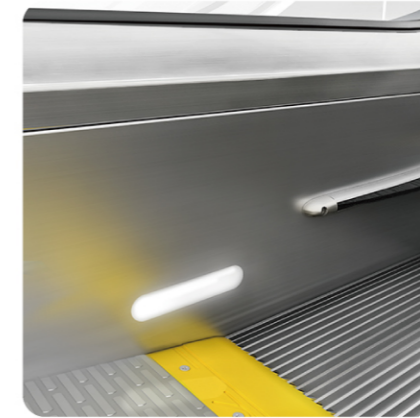For KS-SB-II/KS-SBF-II/KS-LB-II/KS-LBF-II/KS-B-II/KS-BF-II

The seam of the exterior decoration panel
is perpendicular to the running direction of the steps
Base plate light strip lighting
Railing type: stainless steel interior panel
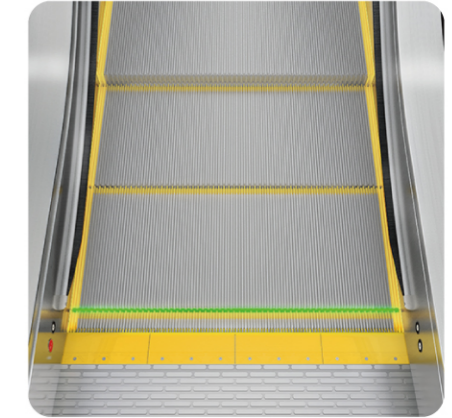For KP-B-II/KP-BF-II

All LED Lighting System
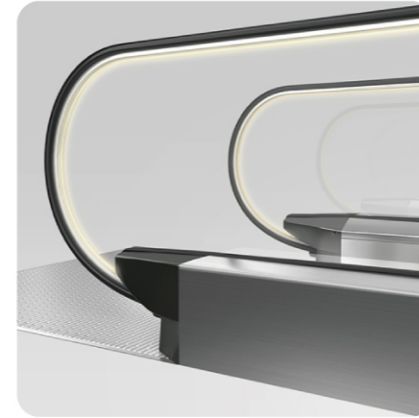
Handrail Lighting
Colors can be selected
applicable to KS-LB-II/KS-LBF-II only

Comb Lighting
Colors can be selected

Under-step Lighting
Green

Continuous Skirt Lighting
Colors can be selected

Dot-matrix Skirt Lighting
Colors can be selected

Optional Lighting Colors

Optional

| White | Light blue |

Non-standard
(contact SMEC)

| Warm white | Blue | Green | Red | Orange |
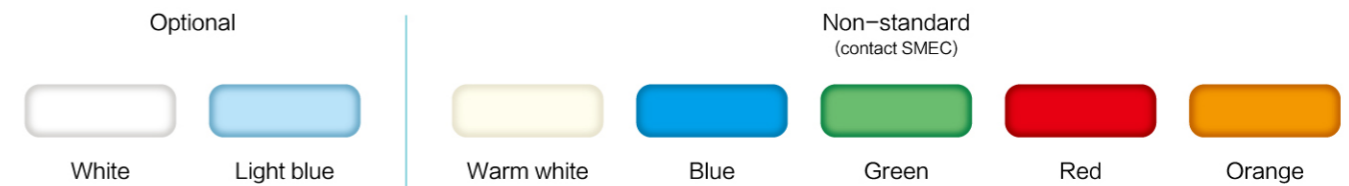
Smart K-II escalators use all LED lighting system, including handrail lighting, skirt lighting, comb lighting, and under-step lighting, to fully improve the environmental quality, save energy and ensure safety and reliability. Except that under-step lighting only uses green for warning purposes, various colors are available for other lighting systems.

Note:
1. The lighting system is optional.
2. Comb lighting/under-step lighting uses linkage control (which is switched on/off with the escalator); handrail lighting/skirt lighting uses manual control (which is switched on/off with the key switch of the escalator or manually through the multi-functional operating panel).
3. Handrail lighting/skirt lighting is controlled manually (with the key switch or multifunctional operation panel on the escalator equipment)

Control and Safety Features

●：Standard；○：Optional；—：N/A

Function	Description	Code	Non-variable frequency	Variable frequency
Phase Reversal and Open Phase Protection	Switch off the main circuit and control circuit to stop the escalator if phase reversal or open phase is detected in the input power supply.	3E	●	●
Anti-Reversal Protection	Switch off the power supply to the drive machine and brakes in case of accidental reversal.	ARP	●	●
Auxiliary Brake	An auxiliary brake stops the escalator before the speed exceeds 1.4 times of the rated speed, or if the traveling direction changes.	AUX-BK *1*2	●	●
Operational Brake Motion Detect	Stop the escalator when the operational brake cannot release or brake properly.	BLR	●	●
Operational Brake	The operational brake works to stop the escalator and keeps it at a standstill.	BRK	●	●
Step Motion Safety Device	Stop the escalator when an abnormality has been observed in the step motion due to an object caught between the skirt riser and adjacent step tread.	CRS	○	○
Comb-Step Safety Device	Stop the escalator if an object is trapped in the gap between the step tread and comb plate.	CSS	●	●
Contactor Motion Detect	Stop the escalator when an abnormality has been observed in the contactor motion.	CTD	●	●
Drive Chain Safety Device	Stop the escalator if the drive chain breaks or stretches beyond an allowable limit.	DCS	●	●
Door Open Switch	Stop the escalator or prevent the escalator from starting when the manhole cover is opened or taken out.	DOS	●	●
Emergency Stop Button	Stop the escalator in case of an emergency when the button is activated.	E-STOP	●	●
Auxiliary Brake Motion Detect	Stop the escalator when the auxiliary brake cannot release or brake properly.	EBR *3	●	●
Electrical Safety Circuit Protection	Stop the escalator once the electrical safety devices in series work.	ESC	●	●
Braking Distance Monitoring	Prevent the escalator from restarting when the braking distance is more than 1.2 times of the maximum value.	ESD	●	●
Handrail Static Electricity Remover	Prevent handrails from generating static electricity.	HER	●	●
Overspeed Protection (1.2x)	Stop the escalator before the travel speed exceeds 1.2 times of the rated speed.	HGD1	●	●
Overspeed Protection (1.4x)	Stop the escalator before the travel speed exceeds 1.4 times of the rated speed.	HGD2 *3	●	●
Handrail Guard Safety Device	Stop the escalator when an object is trapped at the inlet of handrails.	HGS	●	●
Handrail Speed Safety Device	Stop the escalator if the speed of moving handrails is lower than the set value and this situation lasts for a certain period of time.	HSS	●	●
Low-Voltage Protection	Stop the escalator when the voltage of the inverter is too low.	LVP	—	●
Overcurrent Protection	Stop the escalator when the inverter has an overcurrent.	OCP	—	●
Motor Overload Protection	Stop the escalator when the motor is overloaded.	OCR	●	●
Overvoltage Protection	Stop the escalator when the voltage of the inverter is too high.	OVP	—	●
Power Phase Detect	Automatically monitor the phases and frequency of the power supply and bypass variable frequency to realize impact-free switch.	PLL	—	●
Passenger Sensor Fault	Diagnose the faults of passenger sensors and enable the escalator to cancel the standby mode in case of a fault.	PSD	—	○
Step Chain safety Device	Stop the escalator if the step chain breaks or stretches beyond an allowable limit.	SCS	●	●
Skirt Deflector Safety Device	A safety device with a rigid base, which is installed on the skirt to prevent an object or a foot from getting trapped in the gap between the skirt guard and step.	SDS	●	●
Step Static Electricity Remover	Prevent steps from generating static electricity.	SER	●	●
Missing Step Device	Stop the escalator if a missing part of Steps is detected.	SMS	●	●
Step Level Device	Stop the escalator when a step drops and cannot mesh with the comb plate.	SRS	●	●
Skirt Guard Safety Device	Stop the escalator if an object is trapped in the gap between the step and skirt guard.	SSS	○	○
Start Switch Bonding Detect	Prevent the escalator from restarting when the start switch is bonded.	SWD	●	●
Thermo-Detection in Invertor	Stop the escalator when the temperature of the inverter is too high.	THMF	—	●
Under Speed Protection	Stop the escalator when the travel speed of the escalator is lower than the set value.	USP	●	●
Flood Level Alarm	Stop the escalator if there is too much water in the lower truss.	FLS *4	●	●
Oil Level Alarm	Prevent the escalator from restarting when the level of the oiler is too low.	OILF *4	●	●
Over-Temperature Protection	Stop the escalator when over temperature of the motor is detected.	OTP	●	●
Handrail Breakage Safety Device	Stop the escalator if the handrails break or stretch beyond an allowable limit.	HBS	○	○
Operational Brake Wear Monitor	Prevent the escalator from restarting if the operational brake is found worn badly.	BLS	●	●
Overspeed and non-operational reversal protection directly detecting on spindle	The running speed and running direction of the upper step sprocket spindle can be directly detected, and the speed and running direction information can still be accurately obtained even in extreme cases such as driving chain breakage or drive host displacement.	EsAPS	●	●

Notes:
*1 For commercial use escalators and those exceeding 6 m in rise; for airport use.
*2 Optional for commercial use escalators and those not exceeding 6 m in rise.
*3 When auxiliary brakes are provided.
*4 Standard for outdoor or semi-outdoor escalators.

Emergency Operation Features

●：Standard；○：Optional；—：N/A

Function	Description	Code	Non-variable frequency	Variable frequency
Fireman's Service Stop	Stop the escalator when fireman's service signal is received.	FSS	○	○

Operational and Service Features

Function	Description	Code	Non-variable frequency	Variable frequency
Inspection Operation	Inspection Operation mode is convenient for installation and commissioning.	INSP	●	●
Light Shut Off – Manual	Turn on or off the lighting manually.	LO-M *1	●	●
Auto Operation	The escalator runs at rated speed when passengers are detected by passenger sensors, and switches over to standby mode when no passenger is detected.	MDA	—	●
Constant Speed Operation	The escalator always runs at rated speed.	MDC	●	—
Automatic oiling	Automatically oil the chains of the escalator at preset time.	OIL	●	●
Passenger Sensor-Through-beam Type	Passenger sensors are through-beam sensors.	PSB *2	—	○
Passenger Sensor –Microwave Non-column Type	Passenger sensors are microwave sensors. (The detection distance can be up to 1.5 m, but the feature of false start prevention is not available.)	PSM *2	—	○
Passenger Sensor–Column Type	Passenger sensors are photoelectric columns.	PSP *2	—	○
Passenger Sensor (EsPDS)	Passenger sensors are intelligent passenger sensors EsPDS (in standby mode, neglect passengers passing by to reduce false start).	EsPDS *2	—	○
Low-Speed Standby	The escalator travels at a speed lower than the rated speed under no load.	SBLS *3	—	○
Stop and Standby	The escalator stops under no load。	SBSP *3	—	○
Direct Start	The escalator is directly driven by the mains electricity during startup and operation.	SDT	●	—
Backup Start	The escalator can manually switch to be directly driven by the mains electricity if the inverter fails.	SBK	●	●
Travel Direction Alternative	The travel direction of the escalator can be selected.	UDA	●	●
Bypass Variable Frequency	The escalator is powered by an inverter during startup, stop and low-speed standby, and directly driven by mains electricity when it is running at rated speed.	VFBF	—	●
Heater	Monitor the temperature of the escalator through the temperature sensor in real time: When the temperature is lower than the set value, this device will prevent the escalator from starting and automatically start or turn off the heater according to the temperature.	HEAT *4	○	○
Intelligent handrail sterilization (UV light)	Automatically sterilize the handrails by way of UV light according to the actual operation state of the escalator.	IHS	○	○
Intelligent lighting control	Automatically control the lighting according to the ambient illuminance and the operation state of the escalator.	IIC *6	○	○
Intelligent heating	Select different heating strategies according to the ambient temperature and the operation state of the escalator.	IHC *5	●	●
Intelligent lubrication	Automatically adjust the oiling strategy according to the rainfall level where an outdoor escalator is installed.	ILC *6	○	○
Identification and warning of risky passenger behaviors (passengers ride with a pram)	Detect whether a passenger rides the escalator with a pram through the intelligent terminal at the landing areas of the escalator, and then give an acousto-optic alarm signal.	WDB-BS *6	○	○
Identification and warning of risky passenger behaviors (children play at the landing areas of the escalator)	Detect whether there are children playing at the landing areas of the escalator and give an acousto-optic alarm signal.	WDB-PHE *6	○	○
Self-diagnosis of braking torque and active maintenance prompt	The escalator diagnoses the braking torque every time the brake acts, and reminds the maintenance staff to check and adjust in time when sub-health state is found.	IMR-BT	○	○
Load spectrum	Monitor the load (passengers) on the escalator in real time, generate reports regularly and guide the dynamic adjustment of the maintenance plan.	IMR-LS	—	○
Self-diagnosis of inverter temperature and active maintenance prompt	The escalator diagnoses the inverter temperature in real time, and reminds the maintenance staff to check and adjust in time when sub-health state is found.	IMR-IT	—	○
Passenger flow analysis service	Monitor the load (passengers) on the escalator in real time, and generate time-shared passenger flow reports of the escalator (building) regularly.	PFA	—	○
Intelligent morning and evening	According to the user's preset operation start and end time, it provides safe automatic start/stop service under the condition of ensuring no passengers.	IAM	—	○

Notes:
*1 When handrail lighting or skirt lighting is available.
*2 Select PSB, PSM, PSP or EsPDS (PSP is non-standard).
*3 Select SBLS or SBSP.
*4 Optional for outdoor escalators; standard when ambient temperature is below 0℃.
*5 Standard when heaters are provided.
*6 Intelligent terminals are required.

Information and Display Features

●：Standard；○：Optional；—：N/A

Function	Description	Code	Non-variable frequency	Variable frequency
Voice Announcer (CN)	The voice announcer informs passengers of safety tips in Chinese.	AAN-S01	○	○
Voice Announcer (CN/EN)	The voice announcer informs passengers of safety tips in Chinese and English.	AAN-S02	○	○
Voice Announcer (EN)	The voice announcer informs passengers of safety tips in English.	AAN-S03	○	○
Safety Device Code Display	Detect the safety device one by one and display the error code accordingly.	ASD	●	●
BA interface	Output the signals of basic operation state of the escalator through passive dry contacts.	BA	○	○
Door Open Alarm	Remind the passengers of the start, fault, reversal or other information of the escalator.	BUZ	●	●
Buzzer	The buzzer rings when the manhole cover is opened.	DOA	●	●
Direction Indication	Remind passengers of the travel direction, out-of-service or no-entry or other information of the escalator.	DI *1	○	○
Fireman's Emergency Operation -Complete	A signal is sent when the fireman's emergency operation is completed.	FE-CP	○	○
Intelligent Attentive Announcer	Automatically adjust the volume of announcer according to the changing ambient volume.	IAAN *2	○	○
Balustrade Lighting	Lighting at the lower ends of the balustrade.	L-BAL *3	●	●
Under-Step Lighting	Lighting at the position where the steps come in and out to show the edge of steps.	L-STP	○	○
Skirt Lighting	Lighting on the skirt at both sides of the step band.	L-SKT	○	○
Comb Lighting	Lighting on the comb plate at the position where the steps come in and out.	L-COMB	○	○
LED Lighting	Use LED for lighting source.	LED	○	○
Multi-functional Operating Panel	An operating panel installed at the landing areas of the escalator, which is used to operate the escalator, set parameters, check the operation state and error code, etc.	MFP	○	○
Intelligent Escalator Monitoring System	Use computers to monitor the operation state of escalators and give start and stop instructions when necessary.	SmartEye	○	○

Notes:
*1 Non-standard for non-variable frequency escalator.
*2 Intelligent terminals are required.
*3 Standard for KS-LB-II and KS-LBF-II.

Escalator Intelligent Functions

●：Standard；○：Optional

Package Name	Function Description	Code	Energy saving and environment friendly model [6]		Leading excellent model [6]		Cutting-edge technology model [6]		High-end intelligent model [6]	
			P0	P0-M	P1	P1-M	P2	P2-M	P3	P3-M
Light load energy saving *1	When the variable frequency models run under light load, optimize the motor excitation current, thus reducing the running loss and being more energy-saving and environment-friendly.	LLS	●	●	●	●	●	●	●	●
Passing-by error start prevention *1	With the TOF (Time-of-Flight) technology, the traveling direction of passengers in the entrance zone can be accurately monitored, and passengers passing by laterally are screened to prevent error start.	EsPDS	○	○	●	●	●	●	●	●
Outdoor intelligent heating *2	Different heating strategies are automatically selected for heating according to the ambient temperature and escalator running conditions.	IHC	●	●	●	●	●	●	●	●
Intelligent maintenance package *3	Self-diagnosis of braking torque and active maintenance prompt: the escalator diagnoses the braking torque every time the brake acts, and reminds the maintenance staff to check and adjust in time when sub-health state is found.	IMR-BT	●	●	●	●	●	●	●	●
	Self-diagnosis of inverter temperature and active maintenance prompt: the escalator diagnoses the inverter temperature in real time, and reminds the maintenance staff to check and adjust in time when sub-health state is found.	IMR-IT	●	●	●	●	●	●	●	●
	Load spectrum: it monitors the load (passengers) on the escalator in real time, generates reports regularly and guides the dynamic adjustment of the maintenance plan.	IMR-LS	●	●	●	●	●	●	●	●
	Passenger flow analysis service: it monitors the load (passengers) on the escalator in real time, and generates time-shared passenger flow reports of the escalator (building) regularly.	PFA	●	●	●	●	●	●	●	●
Morning and evening automatic ON/OFF of escalator and fault pre-diagnosis *1*4	According to the user's operation time, it provides safe automatic startup in the morning and automatic stop in the evening under the condition of ensuring no passengers, thus eliminating the trouble of manual operation one by one, and saving time and effort. The escalator wakes up automatically before the operation starts in the morning, and detects whether there is any abnormality to ensure that there are no passengers on the escalator; after the operation is stopped at night, the escalator is shut down, and non-working personnel cannot start the escalator.	IAM	○	○	●	●	●	●	●	●
Handrail ultraviolet sterilization and disinfection	Combined with the actual running state of the escalator, the handrail is automatically sterilized by ultraviolet rays, which effectively kill Escherichia coli and Staphylococcus aureus by 99.99%.	HIS	○	○	○	○	○	○	●	●
Exit congestion identification and warning *1	The EsPDS sensor on the escalator side detects whether there are a large number of people stranded at the exit of the escalator, and gives a voice warning.	WDB-CLA			●	●	●	●	●	●
Handrail inlet assembly	The EsPDS sensor on the escalator side senses the dangerous behavior of foreign objects approaching the handrail inlet area and gives a voice warning.	WDB-PHE			●	●	●	●	●	●
Intelligent terminal package *1 *5	The intelligent terminal senses the dangerous behavior of riding the escalator with a stroller and warns to stop.	WDB-BS							●	●
	Intelligent lighting control: escalator lighting is automatically controlled according to ambient light illumination and escalator operation. (Only when handrail lighting or skirt lighting is configured)	IIC							●	●
	Intelligent volume adapting voice broadcast: a voice broadcast function that automatically adapts to the ambient volume, and automatically adjusts the voice broadcast volume according to the background volume.	IAAN							●	●
	Outdoor intelligent lubrication system: fully outdoor escalators automatically adjust the length and interval of refueling according to the rainfall situation to ensure adequate lubrication.	ILC							●	●

Remark:
*1: Patented technology
*2: For outdoor models only
*3: For outdoor models only (except for "high-end intelligent models")
*4: When the monitoring room terminal is not configured, the start/stop time can only be set one by one on the escalator side, and the startup state can only be manually confirmed and checked.
*5: For glass interior panels only (except for KP-BF-II/KP-B-II)
* 6: A monitoring room shall be provided for P0-M/P1-M/P2-M/P3-M

Monitoring room intelligent monitoring functions *1

Package Name	Function Description	Code	Energy saving and environment friendly model *2 P0-M	Leading excellent model *2 P1-M	Cutting-edge technology model *2 P2-M	High-end intelligent model *2 P3-M
Escalator condition monitoring	Monitor the running state of the escalator, including run/stop, up, down, comprehensive failure, etc.; historical fault statistics records all escalator faults and their occurrence and recovery time, etc.; provide audible and visual warning for abnormal state of the escalator. (When exit congestion, passenger falling and reversing detection are configured)	ASD	●	●	●	●
Mobile APP monitoring	With the mobile phone, the manager can observe the running state of each escalator in real time; understand the fault occurrence and troubleshooting records of each escalator; conduct failure rate statistics, and refer to the operation statistics of escalators one by one; grasp the operation of all escalators in an all-round way, and realize on-demand and targeted management and maintenance.	IMT-M	○	○	○	○
Automatic start/stop monitoring	All monitored escalators can be grouped in a unified time setting in the monitoring room, and the automatic start/stop state of the escalators can be monitored.	IMT-S		●	●	●
Monitoring of baby stroller	Whether there is any behavior of riding the escalator with a stroller is judged by virtue of cameras, and the monitoring room records the event.	WDB-BS		○	○	●
Exit congestion monitoring	Whether the exit is congested is determined by virtue of cameras; congestion definition can be configured (number of people and time); the default setting (adjustable) is that alarm is given when there are 5 people strand in the floor slab area for more than 10 seconds. After the congestion is detected, the management software pops up a video for the user management personnel to confirm.	WDB-CLA		○	○	●
	Whether there is a dangerous behavior of passengers falling on the escalator is judged in real time through the high-definition digital cameras installed under the escalator; if it is judged that there is such dangerous behavior, real-time video will be displayed on the terminal interface of the monitoring room to remind passengers that there may be a dangerous behavior of passengers falling on the escalator, and the user management personnel will make a remote emergency stop after manual confirmation. The voice broadcast system will issue corresponding voice warning at the scene.	WDB-S		○	○	●
Abnormal fall monitoring *3	Whether there is a dangerous behavior of passengers reversing on the escalator is judged in real time through the high-definition digital cameras installed under the escalator; if it is judged that there is such dangerous behavior, real-time video will be displayed on the terminal interface of the monitoring room to remind passengers that there may be a dangerous behavior of passengers reversing on the escalator. The voice broadcast system will issue corresponding voice warning at the scene.	WDB-WR		○	○	●

Remark:

*1: Monitoring room at site is required for monitoring function. Monitoring screen size is alternative (55/21/12 inch). Cables from escalators, monitoring camera to monitoring room should be provided by others.

*2: Monitoring room at site is required.

*3：Patented technology
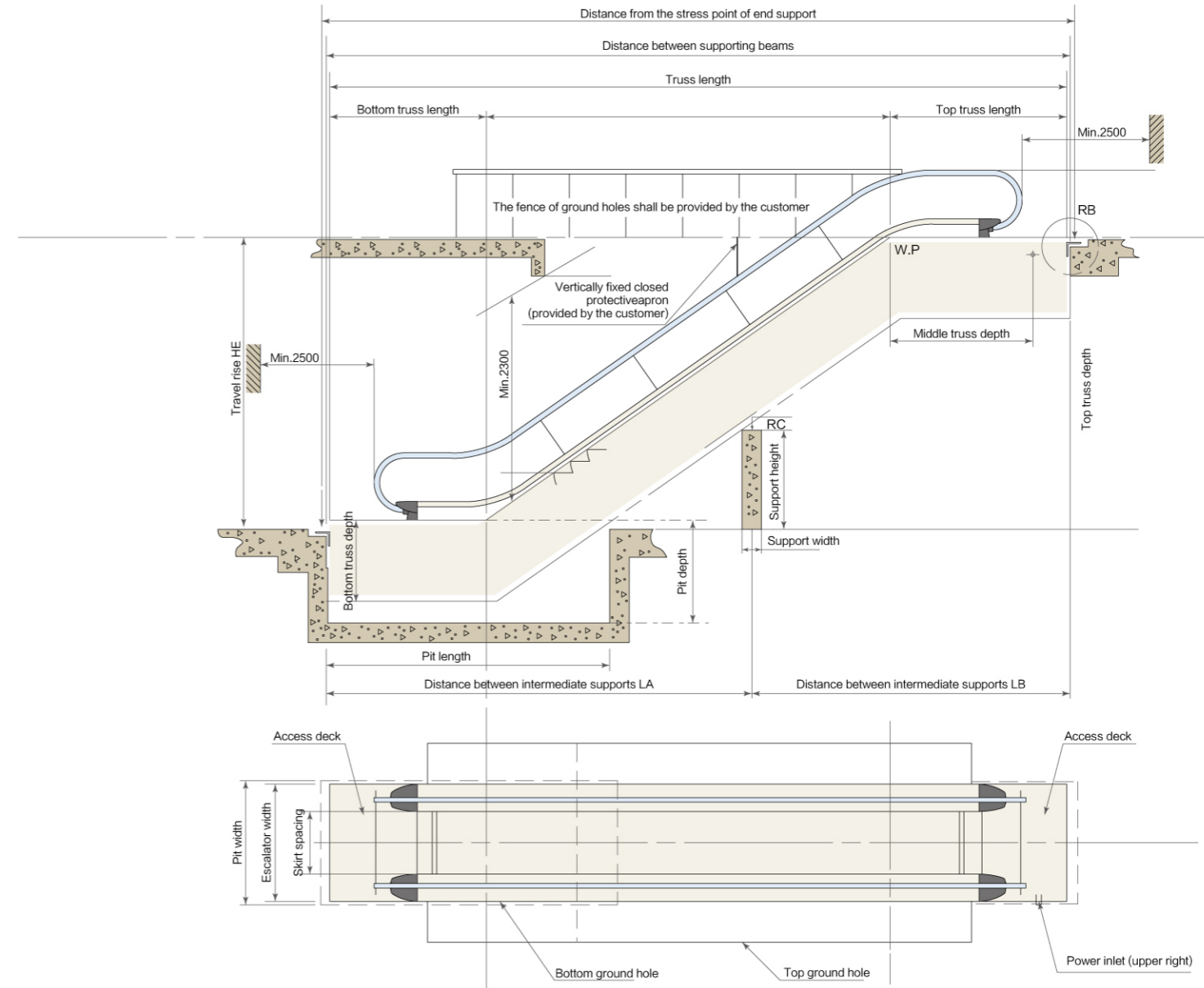
Inquire by scanning QR code of ELeCivil

Smart K-Ⅱ civil sizes:

Scan the QR code of the applet and select in turn:

Escalator inquiry > select "Smart K-Ⅱ" for escalator type