

Low-Voltage Equipment

Product Catalog

Automatic Transfer Switches



1955 ~ 1988 _ History of Technology, Open Up New Vistas

Kwangmyung Electric Co. was founded in 1955 and started as a neutral electricity manufacturer in January, 1968 and moved the plant to Seongsu-dong in April, 1972. The company prepared a foundation as a technology company through a technical tie-up with AICHI Company and VSS & ATS of Japan in April, 1981 and a technical cooperation with MEIDENSHA Company of Japan and a contract was concluded on Korean retail stores (V.I) in December of the same year. VCB 7.2kV-Class Type Test (localization) was completed in July, 1982 and VCB 25.8kV-Class MMSG 2 Type and 7.2kV Type Tests were completed in September of the following year. We were designated as an electric parts and materials development company (Ministry of Commerce, Industry and Energy) for Type1 other than a vacuum contact in July, 1986 and established a technical cooperation with LINDSEY Company, USA on Polymer Concrete in December of the following year. In addition, 4 types of ACB were developed in June, 1988 and successfully localized them (KEMA Authentication, Netherlands).

1989 ~ 1999 _ Opportunity, Challenge and Remarkable Leap

The company name was changed to Kwangmyung Electric Generation Co. in June, 1989 and an affiliated technology lab was founded in December of the same year. We obtained KS marks for VCB 7.2kV, 8kA and 12.5kA in 1990 (Industrial Advancement Administration) and passed the development test for ACB 2 Types (KERI) in 1991 and for outdoor VCB and Gas Insulated Load Break Switch (PGS) (CESI, Italy) in 1993. We acquired the KS mark for Gas Insulated Load Break Switch (PGS for manufacturing) in 1995 and were awarded with the first Export Award (KEMC). We began exporting ATS to GENERAC.CORP, USA in 1995 and obtained KSA-QA ISO9001 certificate. We moved the office to Seoul in August, 1996 (Neung-dong, Gwangjin-gu, Seoul) and successfully developed Manual/ Motorized ASS 25.8kV 200A in December. Also, VCB development test was completed in 1997 (POWER TECH, CANADA), developed L/A 5kA in 1998 (Polymer Rubber Type), developed VCB 25.8kV, 31.5kA, 38kA and 40kA and acquired BVQ1 ISO 9001 certificate. A joint company with China was founded in 1998 and we were awarded IR52 Jang Young Shil Award in February of the following year (Maeil Business Newspaper) and selected as one of the 50 firms with qualitative competitiveness in 1999 which displayed our technical skills and quality that we strengthened for years.

2000 ~ 2016 _ VITZRO, Stepping Forward to the World

The company name was changed to VITZRO EM Co. in 2000. We laid a foundation for a rapid growth by developing VCB 12kV 1250A 25kA/15kV 1200A 25kA and registering in KOSDAQ stock market. A new plant was constructed in July of the following year (located in Seonggok-dong, Ansan, Gyeonggi Province) and we were designated as a promising small business (Gyeonggi Province Office), an electric parts and materials development company and INNO BIZ company (Joint Korean Economic Newspaper/Small and Medium Business Administration). We sped up on development of new technology and products and developed Cable Termination kits, Insulation Cover, Feed-type ASS (auto & manual), Outdoor VCB Bushing (Polymer Type) and Processed Gas Insulated Load Break Switch in 2002, VCB for nuclear power, ACB for nuclear power (508V 30/50/65kA), Current Limit Power Fuse and so forth in 2003. We were also awarded with various certificates and awards that prove our quality and technology such as a reliability certificate on Processed Gas Insulated Load Break Switch (PGS) in 2004 (R Mark, Korean Agency for Technology and Standards), a Certificate of Quality & Environment System and Aerospace Quality System (ISO 9001 & AS9100, ISO 14001) and a grand prize at the 1st Logo & Symbol Mark Contest (Ministry of Commerce, Industry and Energy Award). We obtained GD mark in 2005 and finally got a 1,000 ten million dollar-export prize in November, 2006, confirming the remarkable growth of VITZRO EM.

2017 _ VITZRO EM New Subsidiary

In July 2017, VITZRO EM starts its electric-power equipment business through physical division. Through product development using VI technology, we plans to grow into a only one of electrical equipment industry, VITZRO EM has a vision to become a global leader based on its technical superiority and business expertise.

Products Guide

Best products of electric equipment field including LV and HV from designing, manufacturing, installing and diagnosing the equipment to composing the power system, it is based on the accumulated, global standard technology and continuous R&D.

LV Equipment



Air Circuit Breakers

- ANSI C37.13/EED1200 Certification for Nuclear Power
- Adopted multifunction digital trip relay
- KS, KERI, IEC Certification
- Compact, lightweight
- Standard Specification: IEC 60947-2
- Implementing remote monitoring and control communication



Earth Leakage Circuit Breakers

- Standardized main sizes, easy manufacturing of panel
- Composed of max. 225AF, 2/3/4P
- MCCB / ELCB same frame
- Compatible installation of new and old products
- Adjustable sensitivity current, Max. 500mA



Auto Transfer Switches

- UL1008 Certification, KERI Type Test completed
- Maximum short circuit capacity in the country
- Optimal form that enables installation of 600mm-panel board for all types
- Ensure stability through separately sealed structure for each phase



Thermal Overload Relay

- Direct connection to a magnetic contactor
- Finger proof cover can be installed
- Separation of power/operation part



Molded Case Circuit Breakers

- UL Certification, Max. 800AF
- Max. 1200AF, fully equipped with all series 3/4P
- MCCB / ELCB same frame
- Realization of various auxiliary devices
- Compatible installation of new and old products



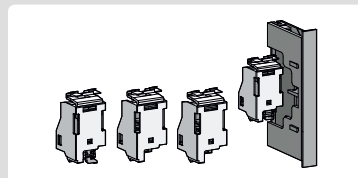
Miniature Circuit Breakers

- Minimum size, easy to apply panel board
- Increase of breaking capacity (5kA at AC 220V)
- Equipped with leakage display button



Magnetic Contact

- Improved Quality and Decreased Noise
- Convenient and Safe structure
- Enhanced safety by adopting Transparent Safety Cover



Auxiliaries

- Standardized auxiliaries, easier to apply
- AL, AX, UVT, Shunt - various auxiliaries

MV Equipment



Vacuum Circuit Breakers

- Rated breaking time of all types - 3 cycle
- Nuclear power certification ANSI C37.05 / EED1100
- Developed the first domestic Embedded VCB
- Passed KERI, KEMA, CESI development test
- Standard Specification: IEC 62271-100 [M2, E2, C2 Class]



Load Break Switch/Auto Section Switch

- Maximum fuse combined capacity in the country—Max. 100A
- LA & PF external combination structure
- Easy to design single-body panel through optimal form design
- Standard Specification: IEC 62271-105, IEC 60265-1, KEMC1126
- Compatible structure for LBS and ASS



Vacuum Contact Switches

- Rated breaking time 6.3kA(16.4kA peak)
- Minimize switch surge through optimal VI design
- Standard Specification: IEC 60470, IEC 60282-1
- Realization of mechanical interlock between VCSs or with other devices



Vacuum Interrupter/Embedded Pole

- Maintain high-vacuum state through automation process
- Compact and lightweight, durable design
- Collect and store all manufacturing information
- Excellent mechanical strength and degassing
- High-speed breaking and short arcing time

MV Equipment



Main Circuit Breaker for Rolling Stock/ Vacuum Train Breaker(MCB/VTB) ██████████

- The sole main circuit breaker for rolling stock in the country
- Excellent seismic performance
- Detection of operating pressure and auto trip function
- Stable breaking feature (AC, DC line)



Gas Insulated Load Break Switch (GLBS) ████

- Division of lines and tapped line applied
- 3 position function(ON, OFF, Earth)
- Increase safety with hot-line display
- Certificate on reliability by KATS
- Low pressure display and lock function



Vacuum Transfer Switches ██████████

- The one and only Medium Voltage Transfer Switch in Korea
- Electrical & Mechanical Interlock available.
- Economical optimization [Two sides of panels and two pieces of VCBs are not necessary.]
- Minimized outside dimension which can be possible with multistage loading.



Current Limit Power Fuse ██████████

- Optimal current limit feature
- Protection through full back-up with high breaking capacity
- Maximum striker motional energy in the country
- Simplified with 4 types of fuse forms
- Protect transformers, motors, Capacitor and wires

IED & Controller



Digital Protection Relay VIPAM ██████████

- System protection required, relay element provided
- Store history of faults(trouble) and wave form
- Provide analysis function through PC interlocking
- RS422/485 communication support
- English/Korean language support



Digital Control Meter VIMAC, VIDER ██████████

- Power quality analysis and breaker control
- Automatic power factor control (APFC), harmonic analysis

Protective Device



Lightning Arrester/Surge Absorber(LA/SA)

- Optimal motion of Gapless type
- Scatter prevention when explodes using a polymer LA
- Can be used outdoors using a polysil SA
- Fire prevention due to nonflammable material



Surge Protective Device ██████████

- IEC and KS standard certification
- Built-in fuse with disconnecting device function
- Excellent TOV failure feature
- Operation status display lamp (LED Lamp)
- Easy to install using a Plug In type

VITZRO EM

A6 Automatic Transfer Switches

CONTENTS

Internal Accessories	A6-02
Ratings	A6-04
Applied Standards	A6-10
External Sizes	A6-12
Controllers	A6-22



Internal Accessories

Automatic Transfer Switches 100~3200A

Innovative convenience and ergonomics are adopted.

It is also a premium product that delivers user-centric reliability while delivering the best solution for a wide range of customer environments with world-class reliability.

Certificate & Approval

- It is a product applied with the accumulated switch design and application technologies, operating machine design technology and insulation design technology.
- It is a product with the largest short circuit capacity and applied with the international standards IEC60947-3 (Transfer Switching Equipment) and IEC60947-6-1 (Transfer Switching Equipment).
- It is an automatic transfer switch equipped with the breaking capacity and its reliability has improved (Obtained a short circuit certificate through KERI Type Test).
- It has both-way breaking capacity.

It is possible to install a 1000 mm panel board for all types through an optimal reduction of exterior structure

- Standard type up to 73% less cosmetic. / Economic type up to 48% less external.
- It can be built inside the movable generator or UPS since it is in a miniature structure.
- It is possible to supply a stable power by composing a separate system.

The transparent terminal cover and insulation molding provides safety

- Transparent insulation cover for access terminals enhances insulation performance against ingress of foreign material and improves operator safety.
- A sealed structure with fully molded insulation to maximize the safety of the operator and lifespan of the device.
- Transparent terminal cover adoption makes it easy to identify terminal connections and makes it easy to work with terminal covers when carrying out a connection.
- It stressed harmony with the surrounding equipment with wired external structure.



It is easy to carry out maintenance and designed in a safe structure

- It is easy to attach/detach the insulation cover of the front part so that it is easy to identify the structural health of the breaking part and connecting terminal part.
- It is easy to check the switching performance and main contact state through a simple, removable Arc Shute structure.
- The operational part is protected by a steel cover and the structural health of solenoid can be checked by a simple removable.

Each phase has been individually sealed for enhanced prevention and safety

- Individual moldings and closures on each of the phase improve blocking performance and increase device lifespan.
- Short arc time and low contact consumption during opening and closing causes semi-permanent life.
- The open operation by means of separate breaking springs ensures consistent and reliable shutdown performance regardless of operating voltage.

Improved safety for users

- The protection and breaking capacity of main points have been enhanced by the design of the trip system after the lines are inserted at the auxiliary contacts Improved safety for users.
- Excellent opening and closing function enables low-arcing arc production for longer product life.

Compact design for customers makes it convenient

- The volume sensitive shape user friendly image was inventoried and the whole curve was applied to create innovation with a simple, beautiful and progressive product image.
- Confidence is emphasized by the clean shape-clearing and well-cleaned adoption of the cable.
- Products in the panel are clear and arranged with clear color application.

Uninterruptible Transfer Types CTTs

100A ~ 3200A

It is a Closed Transition Transfer Switch that automatically transfers without interruption to the control direction within 0.1 second (100ms) by detecting the voltage difference between both powers and frequency difference and checking the synchronizing condition after a simultaneous closing of commercial (A) power and emergency (B) power.



WP type Pause Function
A ↔ Synchronizing ↔ B

Features

Main Plant

Lightning may generate voltage drop for the commercial power or power failure and for the load that requires a long-time recovery, it can be transferred to the emergency power in advance without interruption and back to the commercial power without interruption.

* In case of an uninterruptible transfer,

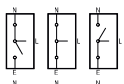
- ① Power failure notified by KEPCO
- ② When the power is recovered and transferred to power plant
- ③ When an instantaneous power failure is expected due to the weather
- ④ When testing a generator or equipment

Uninterruptible transfer is possible when performing the planned maintenance or repairing such as the regular inspection of electrical equipment installed at banks and stations.

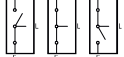
UPS Power Transfer Equipment

By examining the phase of both UPS powers, if they are within the standard value, an uninterruptible transfer is possible.

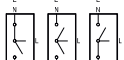
Explanation on Transfer Operation



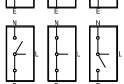
When transferring from commercial power to emergency power, it is transferred to emergency power in the closed state.
(Test or Power transfer)



When retransferring from emergency power to commercial power, it is transferred to commercial power in the closed state.



When transferring from commercial power to emergency power, it is transferred to emergency power in the open state.
(In case of a commercial power failure)



When retransferring from emergency power to commercial power, it is transferred to commercial power in the closed state.
(Uninterruptible transfer to the commercial power)

Type		61CT	62CT					
Rated Current(I _n)	A	100	200					
Rated Voltage(U _e)	V	AC600	AC600					
Rated Insulation Voltage(U _i)	V	AC800	AC800					
Rated Impulse Voltage(U _{imp})	kV	8	8					
Pole	P	2, 3, 4	2, 3, 4					
Throw	T	Double Throw	Double Throw					
Connection Type	Front	●	●					
	Back	-	-					
Performance								
Short Time Current(1s) I _{cw}	kA	5	10					
Short Circuit Peak Current I _{cm}	kA	5	10					
With Specific Circuit Breaker	kA	14	25					
Fuse Mounting	kA	200	200					
Switch Capacity ^{Note1)}	Class	AC-33B	AC-33B					
Endurance	Electrical	Cycles	5,000					
	Mechanical	Cycles	10,000					
Transfer Sequence	A ↔ Overlapping(overlapping) ↔ B, A ↔ B, A ↔ Neutral(off) ↔ B							
Conditions for Uninterrupted Switchover	Phase difference : Within electrical angle 10°, Frequency difference : Within 0.2Hz, Voltage : Voltage difference with the commercial one is within 5%, Instantaneous Interconnection Time : Within 0.05 second							
Operation Time	Closing	msec	≤60	≤60				
	Trip	msec	≤20	≤20				
Conditions of Uninterruptible Transfer			2P	3P	4P	2P	3P	4P
Closing	AC/DC 110V	A	5	5	7	7	7	7
	AC 220V	A	2.5	2.5	3.5	3.5	3.5	3.5
Trip ^{Note2)}	AC/DC 110V	A	3			3		
	AC 220V	A	1.5			1.5		
Dimensions & Weights								
Front Size (mm)		H	268	268	268	283	283	283
		W	210.8	240.8	270.8	240.8	285.8	330.8
		D	111	111	111	111	111	111
Back Size (mm)		H	-	-	-	-	-	-
		W	-	-	-	-	-	-
		D	-	-	-	-	-	-
Weight	Front	kg	6.5	8	10	8	10	12
	Back	kg	-	-	-	-	-	-
Additional Product Information								
Circuit Diagram	A6-24			A6-24				
Drawing	A6-40-42			A6-40-42				
Precautions	A6-18			A6-18				

* Note1) Switching Capacity : AC-33B :
Overcurrent Switching Performance (Closing 10×I_e, Breaking 10×I_e, Cosθ = 0.35),
Rated Load Switching Performance (Closing 1×I_e, Breaking 1×I_e, Cosθ = 0.8)

* Note2) Trip : The switch in the circuit is opened to the neutral position (OFF) at Power A or B.

* Note3) 416CT/425CT Test Report held

	64CT			66CT		610CT		616CT 416CT ^{Note3}		620CT		425CT ^{Note3}		630CT	
	400			600		800, 1000		1200, 1600		2000		2500		2500, 3200	
	AC600			AC600		AC600		AC600 AC415V		AC600		AC415		AC600	
	AC800			AC800		AC800		AC800 AC600V		AC800		AC600		AC800	
	8			8		8		8 6		8		6		8	
	2, 3, 4			3, 4		3, 4		3, 4		3, 4		3, 4		3, 4	
	Double Throw			Double Throw		Double Throw		Double Throw		Double Throw		Double Throw		Double Throw	
	•			•		•		•		-		-		-	
	-			•		•		•		•		•		•	
	12			15		25		32		40		50		50	
	12			15		25		32		40		50		50	
	35			50		50		65		85		85		85	
	200			200		200		200		200		200		200	
	AC-33B			AC-33B		AC-33B		AC-33B		AC-33B		AC-33B		AC-33B	
	5,000			5,000		5,000		5,000		3,000		3,000		3,000	
	10,000			10,000		10,000		10,000		5,000		5,000		5,000	
	A ↔ Overlapping(overlapping) ↔ B, A ↔ B, A ↔ Neutral(off) ↔ B														
	Phase difference : Within electrical angle 10°, Frequency difference : Within 0.2Hz, Voltage : Voltage difference with the commercial one is within 5%, Instantaneous Interconnection Time : Within 0.05 second														
	≤100			≤150		≤150		≤150		≤250		≤250		≤250	
	≤30			≤30		≤30		≤60		≤80		≤80		≤80	
	2P	3P	4P	3P	4P	3P	4P	3P	4P	3P	4P	3P	4P	3P	4P
	7	7	9	7	8	8	10	10	13	-	-	-	-	-	-
	3.5	3.5	4.5	3.5	4	4	5	5	6.5	6.5	8	8	9	8	9
	4			4		4		4 4		4		-		4	
	2			2		2		2 4		2		4		2	
	307	307	307	545	545	607	607	644	644	-	-	-	-	-	-
	292.5	352.5	412.5	465	530	510	590	570	670	-	-	-	-	-	-
	132	132	132	219.4	219.4	219.4	219.4	219.4	219.4	-	-	-	-	-	-
	-	-	-	478	478	478	478	478	478	580	580	580	580	580	580
	-	-	-	465	530	510	590	570	670	685	820	835	1020	835	1020
	-	-	-	-	-	-	-	300	300	329	329	364	364	364	364
	14	17	21	53	61	66	76	72	84	-	-	-	-	-	-
	-	-	-	-	-	-	-	72	84	130	150	165	205	165	205
	A6-24			A6-24						A6-24					
	A6-40-42			A6-40-42						A6-40-42					
	A6-18			A6-18						A6-18					

Installations



600A ATS - TransconDevelopers



2000 A thru Lotus for Export



3200A ATS - Bhayander Club



Oriana Business Center



1000 ATS Pharma Company



1600A ATS Mumbai University

Some of our other installations:

3200A at SRCC Children's Hospital, Mumbai
Upto 1000A at Tata Cancer Hospital, Varanasi
Upto 600A at Bombay House, Mumbai
Upto 1600A at Seawoods Central Mall, Navi Mumbai
1600A at Sahar Cargo complex
3200A at Zee Studio, Jaipur
130Nos, 100A at Noida Metro
60Nos, 100A at Nagpur Metro
27nos @ Vasai Mall, Vasai
Reliance Retail Stores - PAN India

Hiranandani Developers
L&T Construction
Della Resorts
14nos @ IOCL Bldg at BKC, Mumbai
2000A @ UK27 Hotel, Belgaum
22nos @ Ace Designers, Bangalore
6nos @ Godrej Trees, Vikhroli
1200A CTTS @ IOCL, Ujjain refinery
1200A + 3nos @ HDIL, Andheri



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