



PRODUCTS RANGE



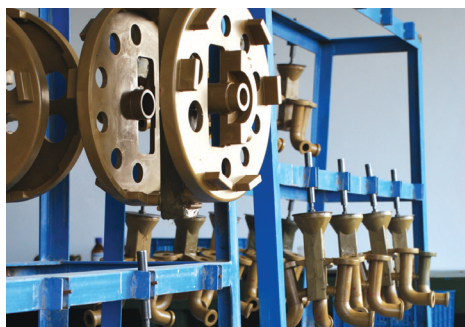
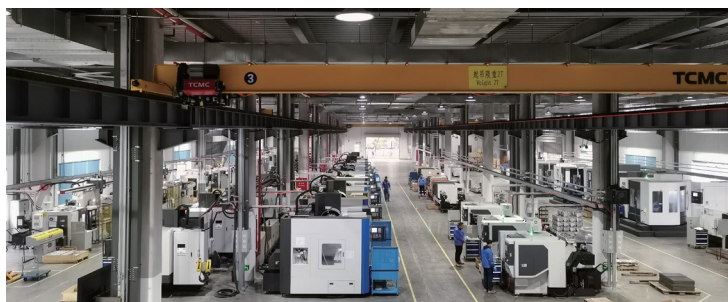
Shanghai Huaming Power Equipment Co., Ltd.

On-Load Tap Changer
De-Energized Tap Changer
Motor Driver Unit
Online Oil Filter Plant
Automatic Voltage Regulator
Monitoring Device

Product Guide



Type	OLTC	DETC	Liquid immersed	Air insulated	Gas insulated	Non-vacuum	Vacuum
CM	√	●	√	●	●	√	●
CV	√	●	√	●	●	√	●
CMD	√	●	√	●	●	√	●
CM2	√	●	√	●	●	●	√
CV2	√	●	√	●	●	●	√
SHZV	√	●	√	●	●	●	√
SHZVG	√	●	√	●	●	●	√
SHGV	√	●	●	●	√	●	√
HWV	√	●	√	●	●	●	√
HWDK	√	●	√	●	●	●	√
CZ	√	●	●	√	●	●	√
CVT	√	●	●	√	●	●	√
WDL	●	√	√	●	●	√	●
WDG	●	√	√	●	●	√	●
ZWC	●	√	√	●	●	√	●



CONVENTIONAL OIL TYPE ON-LOAD TAP CHANGERS

CM OLTC



OLTC Type	CM	
Phase	III or II	I
Max. rated through current I_{um} up to (A)	600	1500
Short circuit current test (kA)		
Thermal (3S)	8	24
Dynamic (Peak)	20	60
Max. rated step voltage U_{im} (V)	3300	3300
Rated step capacity P_{stn} (kVA)	1500	3500
The highest voltage for equipment U_m up to (kV)	252	252
Max. operation positions		
Without change-over selector	18	18
With change-over selector	35	35

CONVENTIONAL OIL TYPE ON-LOAD TAP CHANGERS

CM OLTC WITH MULTIPLE COARSE & FINE REGULATION

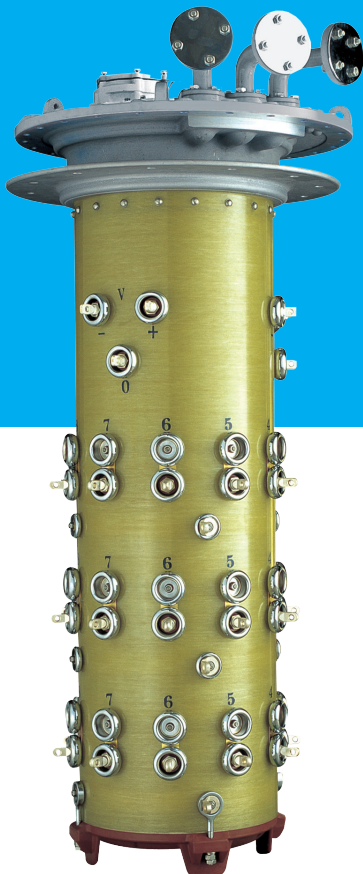


OLTC Type	CM Multiple Coarse & Fine regulation	
Phase	III	I
Max. rated through current I_{um} up to (A)	600	1500
Short circuit current test (kA)		
Thermal (3S)	8	24
Dynamic (Peak)	20	60
Max. rated step voltage U_{im} (V)	3300	3300
Rated step capacity P_{stn} (kVA)	1500	3500
The highest voltage for equipment U_m up to (kV)	252	252
Max. operation positions	107	

OLTC Type	CMD	
	III	I
Phase		
Max. rated through current I_{um} up to (A)	1000	2400
Short circuit current test (kA)		
Thermal (3S)	12	24
Dynamic (Peak)	30	60
Max. rated step voltage U_{im} (V)	4000	4000
Rated step capacity P_{stn} (kVA)	3000	5600
The highest voltage for equipment U_m up to (kV)	252	252
Max. operation positions		
Without change-over selector	18	18
With change-over selector	35	35



CONVENTIONAL OIL TYPE ON-LOAD TAP CHANGERS CMD OLTC



OLTC Type	CV & SV	
	III	I
Phase		
Max. rated through current I_{um} up to (A)	500	700
Short circuit current test (kA)		
Thermal (3S)	7	10
Dynamic (Peak)	17.5	25
Max. rated step voltage U_{im} (V)	1500	1500
Rated step capacity P_{stn} (kVA)	525	660
The highest voltage for equipment U_m up to (kV)	72.5	72.5
Max. operation positions		
Without change-over selector	14	14
With change-over selector	27	27

CONVENTIONAL OIL TYPE ON-LOAD TAP CHANGERS CV & SV OLTC

VACUUM OIL TYPE ON-LOAD TAP CHANGERS

CM2 OLTC



OLTC Type	CM2	
Phase	III	I
Max. rated through current I_{um} up to (A)	600	1500
Short circuit current test (kA)		
Thermal (3S)	8	24
Dynamic (Peak)	20	60
Max. rated step voltage U_{im} (V)	3300	3300
Rated step capacity P_{stn} (kVA)	1500	3500
The highest voltage for equipment U_m up to (kV)	252	252
Max. operation positions		
Without change-over selector	18	18
With change-over selector	35	35



VACUUM OIL TYPE ON-LOAD TAP CHANGERS

SHZV OLTC

OLTC Type	SHZV	
Phase	III	I
Max. rated through current I_{um} up to (A)	1000	2400
Short circuit current test (kA)		
Thermal (3S)	12	24
Dynamic (Peak)	30	60
Max. rated step voltage U_{im} (V)	4000	4000
Rated step capacity P_{stn} (kVA)	3000	5600
The highest voltage for equipment U_m up to (kV)	363	363
Max. operation positions		
Without change-over selector	18	18
With change-over selector	35	35

OLTC Type	SHZVG	
Phase	III	I
Max. rated through current I_{um} up to (A)	1500	3600
Short circuit current test (kA)		
Thermal (3S)	20	40
Dynamic (Peak)	50	100
Max. rated step voltage U_{im} (V)	6000	6000
Rated step capacity P_{stn} (kVA)	6000	14400
The highest voltage for equipment U_m up to (kV)	363	363
Max. operation positions		
Without change-over selector	18	18
With change-over selector	35	35



VACUUM OIL TYPE ON-LOAD TAP CHANGERS SHZVG OLTC



OLTC Type	CV2	
Phase	III	I
Max. rated through current I_{um} up to (A)	600	600
Short circuit current test (kA)		
Thermal (3S)	8	8
Dynamic (Peak)	20	20
Max. rated step voltage U_{im} (V)	2000	2000
Rated step capacity P_{stn} (kVA)	800	800
The highest voltage for equipment U_m up to (kV)	145	145
Max. operation positions		
Without change-over selector	12	12
With change-over selector	23	23

VACUUM OIL TYPE ON-LOAD TAP CHANGERS CV2 OLTC

VACUUM GAS TYPE ON-LOAD TAP CHANGER **SHGV OLTC**

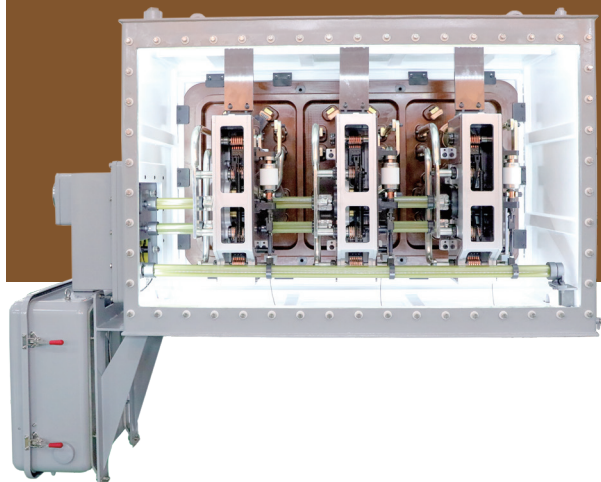


OLTC Type	SHGV
Phase	III or I
Max. rated through current I_{um} up to (A)	400
Short circuit current test (kA)	
Thermal (3S)	6
Dynamic (Peak)	15
Max. rated step voltage U_{im} (V)	4000
Rated step capacity P_{stn} (kVA)	1200
The highest voltage for equipment U_m up to (kV)	126
Max. operation positions	
Without change-over selector	14
With change-over selector	27

ON-TANK RESISTIVE VACUUM ON-LOAD TAP CHANGER **HWV OLTC**



OLTC Type	HWV
Phase	III
Max. rated through current I_{um} up to (A)	1000
Short circuit current test (kA)	
Thermal (3S)	12
Dynamic (Peak)	30
Max. rated step voltage U_{im} (V)	3300
Rated step capacity P_{stn} (kVA)	2600
The highest voltage for equipment U_m up to (kV)	72.5
Max. operation positions	
Without change-over selector	18
With change-over selector	35



OLTC Type	HWDK	
Phase	III	I
Max. rated through current I_{um} up to (A)	2500	2500
Short circuit current test (kA)		
Thermal (3S)	24	
Dynamic (Peak)	60	
Max. rated voltage tap-to-tap (V)	2000	
Rated step capacity P_{stn} (kVA)	2500	2500
The highest voltage for equipment U_m up to (kV)	69	
Standard operating positions (with change-over selector)	33	
Regulating winding section	9 (8 effective)	

ON-TANK REACTIVE VACUUM ON-LOAD TAP CHANGER **HWDK OLTC**

OLTC Type	CZ
Phase	3xl
Max. rated through current I_{um} up to (A)	500
Short circuit current test (kA)	5
Thermal (3S)	
Dynamic (Peak)	12.5
Max. rated step voltage U_{im} (V)	950
Rated step capacity P_{stn} (kVA)	325
The highest voltage for equipment U_m up to (kV)	72.5
Max. operation positions Without change-over selector	17



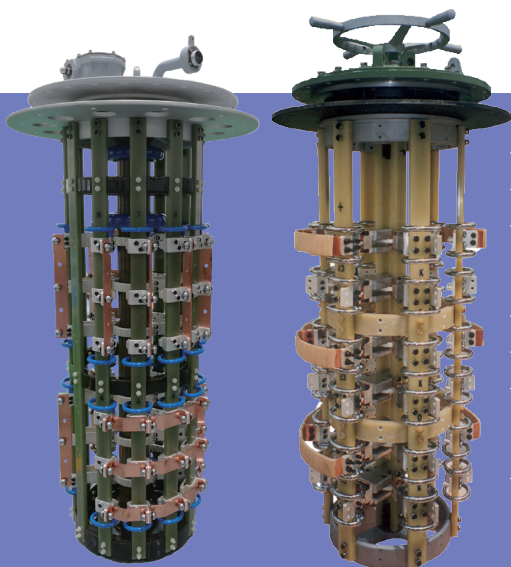
VACUUM AIR TYPE ON-LOAD TAP CHANGERS **CZ OLTC**

VACUUM AIR TYPE ON-LOAD TAP CHANGERS **CVT OLTC**



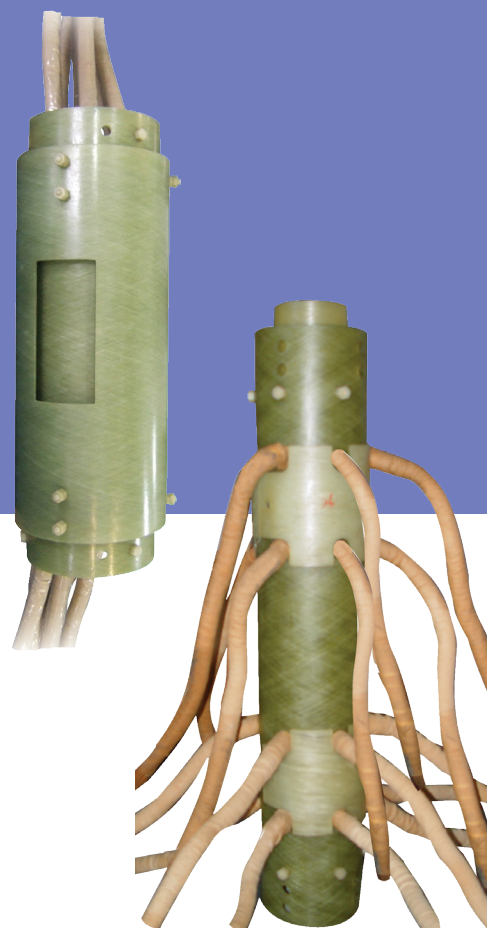
OLTC Type	CVT
Phase	III
Max. rated through current I_{um} up to (A)	160
Short circuit current test (kA)	
Thermal (3S)	3
Dynamic (Peak)	7.5
Max. rated step voltage U_{im} (V)	500
Rated step capacity P_{stin} (kVA)	80
The highest voltage for equipment U_m up to (kV)	12
Max. operation positions	9
Without change-over selector	

DE-ENERGIZED TAP CHANGERS **WDL SINGLE-PHASE DETC** **WSL THREE-PHASE DETC**



DETC Type	WSL	WDL
Phase	III	I
Max. rated through current I_{um} up to (A)	4000	6000
Short circuit current test (kA)		
Thermal (3S)	40	60
Dynamic (Peak)	100	150
The highest voltage for equipment U_m up to (kV)	363	363
Max. operation positions	11	11
Connection	linear, single-bridging double-bridging, reversing star-delta, series-parallel	
Operation mode	hand wheel on top manual driving mechanism at side motor driving mechanism at side	

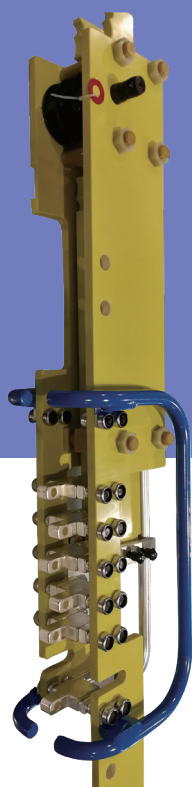
DETC Type	A TYPE			B TYPE
	WDG	WLG	WSG	WDG
Phase	I	II	III	I
Max. rated through current I_{um} up to (A)	2000	2000	1000	2000
Short circuit current test (kA)				
Thermal (3S)	20	20	12	20
Dynamic (Peak)	50	50	30	50
The highest voltage for equipment U_m up to (kV)	126	126	126	126
Max. rated step voltage (V)	2,5,7	2,5,7	5.7	5
Rated step capacity P_{stn} (kVA)				
Connection	linear, single-bridging double-bridging, reversing star-delta, series-parallel			linear single-bridging
Operation mode	manual operation on top or at side motor driving at side			



DE-ENERGIZED TAP CHANGERS

WLG DETC (A TYPE)

WDG DETC (B TYPE)



DETC Type	ZWC	
Phase	Single phase	
Max. rated through current I_{um} up to (A)	500	1000
Short circuit current test (kA)		
Thermal (3S)	8	15
Dynamic (Peak)	12.5	25
The highest voltage for equipment U_m up to (kV)	145	145
Connection mode	Linear	
Max. operating positions	5	
Contact resistance between fixed and moving	$\leq 350\mu\Omega$	
Operating method	Side manual operation	

DE-ENERGIZED TAP CHANGERS

ZWC DETC

TAP CHANGER MOTOR DRIVE UNITS

CMA7 MOTOR DRIVE UNIT

Application	All type tap changers
Rated power	750W, 1,100W or 2,200W
Rated voltage	All voltages DC&AC
Power Frequency	50Hz or 60Hz
Revolutions of drive shaft per switching operation	33
Type of controller	SHM-KX, ET-SZ6



TAP CHANGER MOTOR DRIVE UNITS

SHM-D MOTOR DRIVE UNIT



Application	All type tap changers
Rated power	750W
Rated voltage	All voltages DC&AC
Power Frequency	50Hz or 60Hz
Revolutions of drive shaft per switching operation	33
Type of controller	SHM-KX

Application	All type tap changers
Rated power	0.75kW/1.1kW/1.5kW
Rated voltage	110/220/380V 3 phases(can be customized)
Power Frequency	50Hz or 60Hz
Revolutions of drive shaft per switching operation	33
Type of controller	SHM-KX, ET-SZ6



TAP CHANGER MOTOR DRIVE UNITS **SHM-X MOTOR DRIVE UNIT**



Application	All type tap changers
Rated power	0.75kW/1.1 kW/1.5 kW
Rated voltage	All voltages DC & AC
Power frequency	50Hz or 60Hz
Revolutions of drive shaft per switching operation	33
Type of controller	HMIET-I
Monitoring function	IEC 61850 or Modbus RTU communication protocol Transformer single-phase voltage, current, frequency, active current, reactive current measurement and calculation OLTC position display (BCD or 4-20mA) Statistics of OLTC tap position and number of operations OLTC switching sequence, limit and multi-unit switching synchronization Switch operating mechanism status, motor current and voltage monitoring, torque calculation Current waveform during motor operation can be displayed

TAP CHANGER MOTOR DRIVE UNITS **SHM-X_E**

OLTC ONLINE OIL FILTER PLANT

ZXJY OLTC ONLINE OIL FILTER PLANT

Application	Online OLTC oil filtering
Rated power	370W
Rated voltage	380V/AC
Power Frequency	50Hz or 60Hz
Rated flow	9L/min
Debris filtering accuracy	$\leq 3\mu\text{m}$



OLTC & TRANSFORMER MONITOR

HMJK-II MONITORING DEVICE



Basic functions

- IEC 61850 or Modbus RTU communication protocol
- Transformer single-phase voltage, current, frequency, active current, reactive current measurement and calculation
- OLTC position display (BCD or 4-20mA)
- Statistics of OLTC tap position and number of operations
- OLTC switching sequence, limit and multi-unit switching synchronization
- Switch operating mechanism status, motor current and voltage monitoring, torque calculation
- Current waveform during motor operation can be displayed
- Configurable oil temperature and pressure (4-20mA)
- Contact life and wear calculation
- Oil filter status signal can be accessed



Power	AC 85-264V AC: 50/60Hz, DC 100-250V
Switching output	16-channel passive, relay output, contact capacity: 5A 250VAC, 5A 30VDC
Status signal input	16-channel Digital Input signal inputs
Analog input	Voltage Acquisition: 40V - 140V Current Acquisition: 1A - 5A
Basic function	Digital input & output Primary and secondary voltage Bandwidth setting T1 setting Undervoltage, overvoltage, overcurrent (upon request) blocking Line voltage drop compensation Z & LDC compensation VT & CT (upon request) setting Parallel setting Master-slave mode setting Communication parameter setting Protocol: MODBUS; IEC61850, IEC101, 103, 104; SC1801; CDT Network port: RJ45

OLTC AUTOMATIC VOLTAGE REGULATOR

SHM-KX AVR

Power	88-265V DC/AC;
Input/output	Digital
Input	Analog
Tap	BCD, Dual, Gray code, 0(4)-20 mA, resistive contact plate
Display value	dU, U, I, Iact, Ireact, ϕ , F, S, P, Q, Cos
Basic function	Digital input & output Primary and secondary voltage Expected voltage level 1, 2 & 3 Bandwidth setting T1 setting Undervoltage, overvoltage, overcurrent blocking Line voltage drop compensation Z compensation VT & CT setting Angle setting Parallel setting Master-slave mode setting Minimum circulation mode setting Communication parameter setting Protocol: MODBUS, IEC61850 Network port: RJ45 / Optical port, RJ45 optional

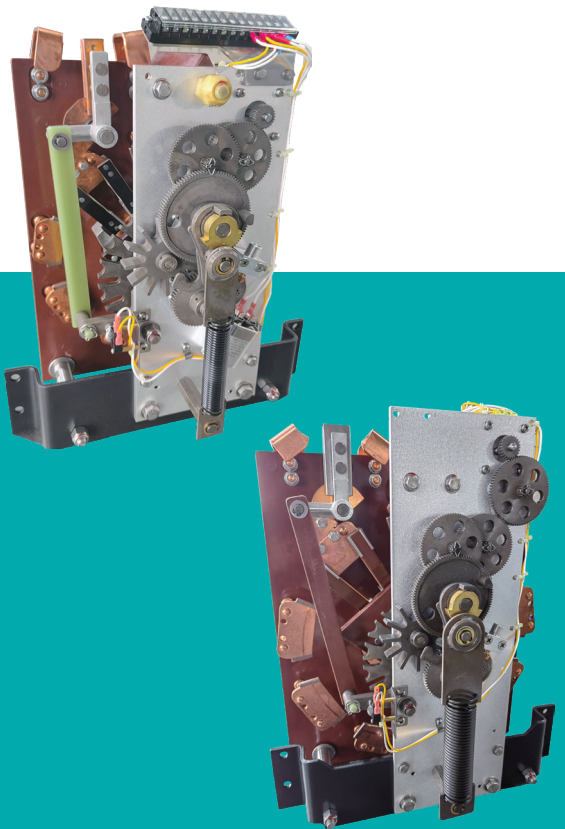


OLTC AUTOMATIC VOLTAGE REGULATOR

HMIET-I AVR

REACTANCE ON-LOAD TAP CHANGER

HMDK



OLTC Type		HMDK		
Phase		I		
Max. rated through current I_{um} up to (A)		300	600	600HV
Short circuit current test (kA)				
2S _{rsm}		7.5	16	
0.8S _{rsm}		12	20	
Peak value		27.12	45.2	
Step voltage U_{im} (V)		172.5	172.5	350
The highest voltage for equipment U_m up to (kV)		27.6	27.6	35
Max. operation positions		33		
Motor	Rated voltage (V)	115		
	Rated output power (W)	20		
	Frequency (Hz)	50 or 60		
	Current (A)	0.58		

HMDK LTC POSITION INDICATOR

SHYB-II

	Mechanical transmission and structure	Total transmission ratio	36:1
		Indication precision	Deviation of less than $\pm 2.25^\circ$ at any of the dial position.
		Limit switches	Can be set up at scale positions of 8L/R, 10L/R 12L/R, 14L/R 16L/R as request.
		Reset of drag hands	Drag hands can return to position of pointer freely, rapidly and completely once getting the signal from controller.
	Connection	- Input shaft socket must match the special flexible shaft very well. - J15 connector connected to OLTC is customized and supplied by Huaming. - J9 terminal connector (type TYCO CAT #350783-1) for connecting to the terminal of controller (type TYCO CAT #350720-1) - J12 terminal connector (type TYCO CAT #350782-1) for connecting to the terminal of controller (type TYCO CAT #350735-1)	
		Electric reset solenoid	Be fit for 120V/50Hz or 120V /60Hz, Maximum on time is 1min
		Limit switch	Type OMRON V-152-1C 25 (15A, 125VAC)
		Hipot	All terminals to the aluminum alloy housing and between terminals, the power frequency withstanding voltage is 1.5kV, 50HZ /1min.



Headquarter

Shanghai Huaming Power Equipment Co., Ltd.

Address: No. 977 Tongpu Road, Putuo District, Shanghai, 200333, China

Tel: +86 21 52708966 ext. 8688/8123

E-mail: export@huaming.com

Website: <http://www.intl-huaming.com>

Huaming Singapore

Address: Tai Seng Exchange (TSX) Tower A #03-13, 1 Tai Seng Ave, 536464, Singapore

E-mail: intl@huaming.com

Huaming Türkiye

Address: Organize Sanayi Bölgesi 9. Cad. No.13/2 10020 Merkez Balıkköy, Türkiye

Tel: +90 216 2322246

E-mail: info@huaming.com.tr

Website: www.huaming.com.tr

Huaming Latin America

Address: Gelásio Pimenta, 171 - Vila Antonina, São Paulo - SP, 03412-000, Brazil

Tel: +55 11 24954979

E-mail: sergiogomes@huaming.com

Website: www.huaming.com.br

Huaming USA

Address: 4981 Irwindale Ve Ste 800, Irwindale, CA 91706-2183 U.S.A.

Tel: +1 647 9393845

E-mail: deepanshu.setia@huaming.com

Huaming Indonesia

Address: Jl.Kenari Blok G1 28L Kawasan Delta Silicon 5

Desa.Cicau Kecamatan Cikarang Pusat Kabupaten Bekasi

Jakarta, 17530, Indonesia

Tel: +62 852 15286730

E-mail: jimsu@huamingpowerindonesia.com