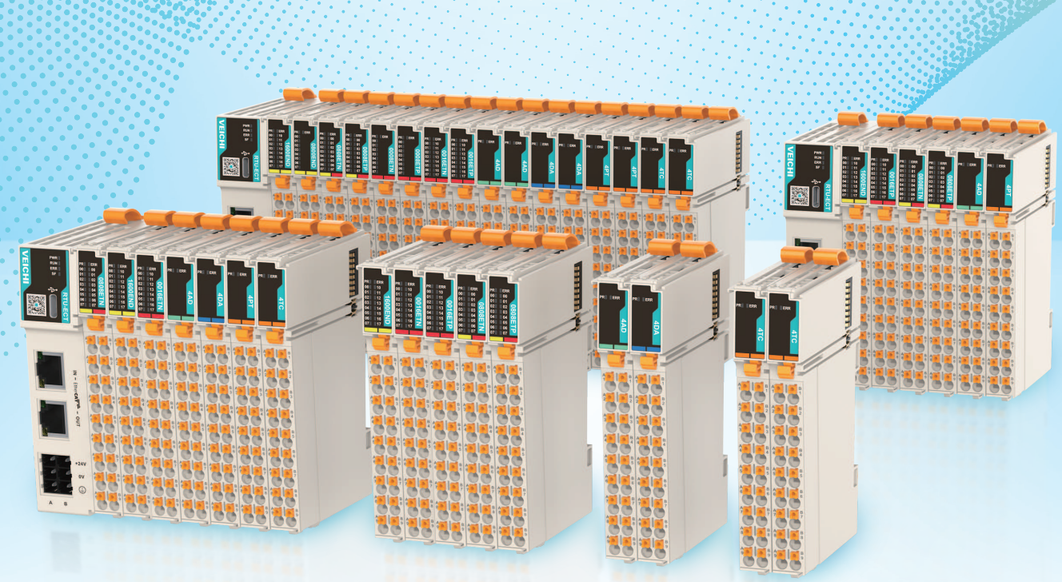
VEICHI

VM-Series
Flexible Remote Module



VEICHI

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Official Website

*Version: June，2023

About us

VEICHI Electric (stock code: 688698) has always been dedicated to the field of electrical drive and industrial control since its establishment, and now it is a high-tech enterprise engaged in R&D, production, and sales of industrial automation products in one. With R&D and production bases in Suzhou, Shenzhen and Xi'an, and a wholly-owned subsidiary in India, VEICHI now is capable of conducting its business to many countries and regions with competitive, safe and reliable products and services to customers all over the world.

Plentiful products cover AC drives, servo systems and control systems, which are widely used in heavy industry, light industry, high-end equipment and more to facilitate the intellectualized transformation of the manufacturing industry with solutions customized to different scenarios. In the meanwhile, along the development trend of the times, VEICHI is extending its place to the emerging fields such as robotics, new energy, and medical care, and has developed products such as coreless motors, frameless motors, photovoltaic AC drives, and surgical power systems, which have deeply empowered the impressively promising industries.

On long-term and persistent independent R&D and innovation, VEICHI has successfully cultivated a series of patented technologies with independent intellectual property rights, and has mastered the core technologies of motor control such as vector control of PMSM, high-frequency pulse injection control, field-weakening control for higher speed, scalar V/F control and vector control etc., and of silicon carbide application, motor parameter tuning and identification, motor control and protection, and motor speed tracking and start-up control. As of June 30, 2023, a total of 163 patents have been granted, including 43 patents for inventions.

VEICHI has been developing step by step over the past 18 years with abundant honorary awards and certificates from the state and competent authorities, including "the Third Batch of Special and Sophisticated 'Small Giant' Enterprises That Produce Novel and Unique Products" "High-tech Enterprises", "Jiangsu Provincial Engineering Technology Research Center", "Jiangsu Provincial Enterprise Technology Center", "Jiangsu Provincial Industrial Internet Development Demonstration Enterprise (Benchmarking Factory Category)" and others.

In the future, VEICHI Electric will continue to uphold the business philosophy of " guided by market demand and driven by technological innovation", strengthen the key core technology research and product iteration, and constantly expand its high-performance, high-quality, high-reliability applications, contributing to the development of electrical drive and industrial control with might and main.

2005
- Beginning of entrepreneurship in Shenzhen
- First-generation of AC drive successfully launched

2013
- Suzhou VEICHI Electric Co., Ltd established
- First generation of servo system successfully developed

2014
- First stage of Suzhou VEICHI project groundbreaking and put into construction

2016
- First stage of Suzhou VEICHI project put into operation
- First generation of motion control system launched

2019
- Indian subsidiary established
- Restructure to a company limited by shares

2020
- A-share of science and technology innovation board landing
- Awarded as provincial Specialized and Sophisticated "Small Giant" Firms That Produce New and Unique Products

2021
- A Veichi controlled subsidiary established
- Awarded as the third patch of Specialized and Sophisticated "Small Giant" Firms That Produce New and Unique Products

2022
- Xi'an R&D Center established
- VEICHI Digital Energy subsidiary established

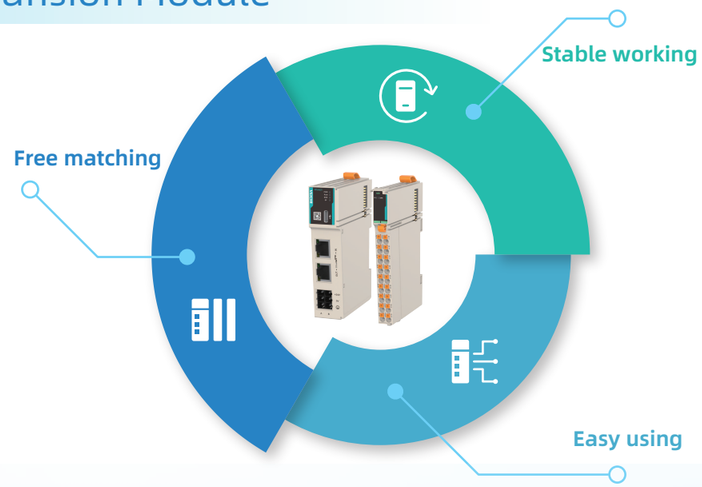
2023
- Suzhou VEICHI Phase II project put into operation
- Suzhou VEICHI Phase III Project put into construction
- VEICHI Medical Equipment subsidiary established

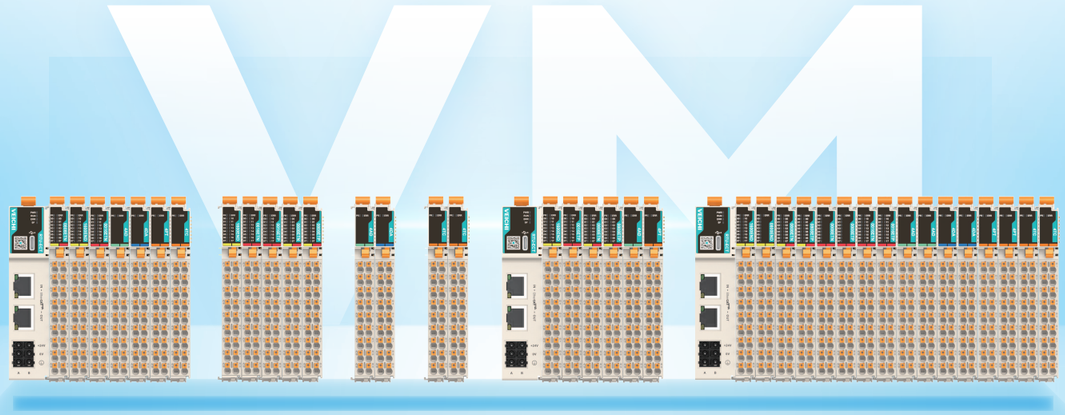
Light and thin

VM-Series Remote Expansion Module

VM series remote module is the new generation among expansion modules from VEICHI, featuring light weight, fast signal acquisition, easy assembly, and high reliability. It is suitable for common bus networks with microsecond-level response speed.

VM series remote modules are available in a wide range of models, added with its excellent continuous operation performance and high responsiveness, to meet the various needs of industrial control automation.





Rich modules Rich combinations

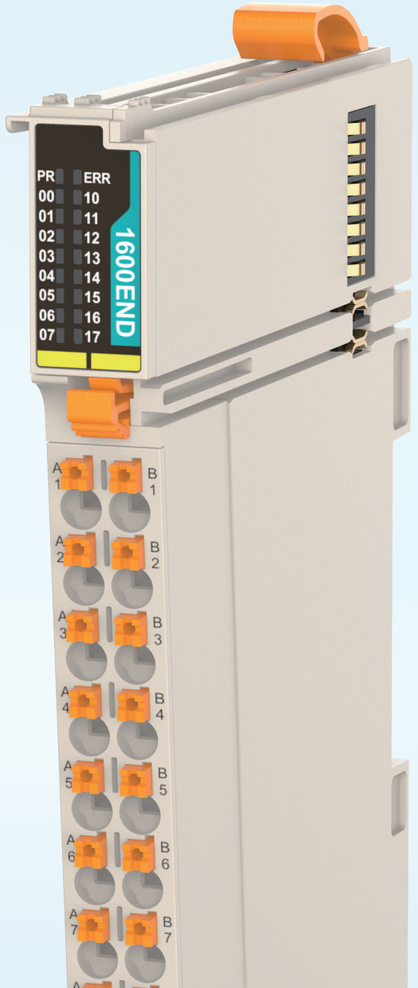
Lighter, faster, more credible new generation distributed remote modules

Max 16 modules supported

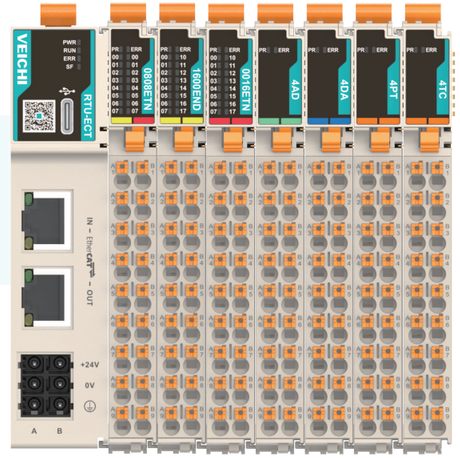
New generation of bus speed raised to 100mbps

2/3 cabinet space saved off

D-BUS with two sides of the connecting fingers attached together for higher stability



VM-Series remote expansion module models



Model	Description
VM-RTU-ECT	Programmable controller EtherCAT (auto-scan) communication module: coupler
VM-RTU-PN	Programmable controllers PROFINET communication module : coupler
VM-1600END	16-way digital input module
VM-0800END	8-way digital input module
VM-0016ETN	16-way digital transistor NPN output module
VM-0016ETP	16-way digital transistor PNP output module
VM-0808ETN	8-way digital input module and 8-way digital transistor NPN output module
VM-0808ETP	8-way digital input module and 8-way digital transistor PNP output module
VM-0008ETN	8-way digital transistor NPN output module
VM-0008ETP	8-way digital transistor PNP output module
VM-4AD	4-way analog input module
VM-4DA	4-way analog output module
VM-4PT	4-input RTD temperature detection module
VM-4TC	4-input TC temperature detection module

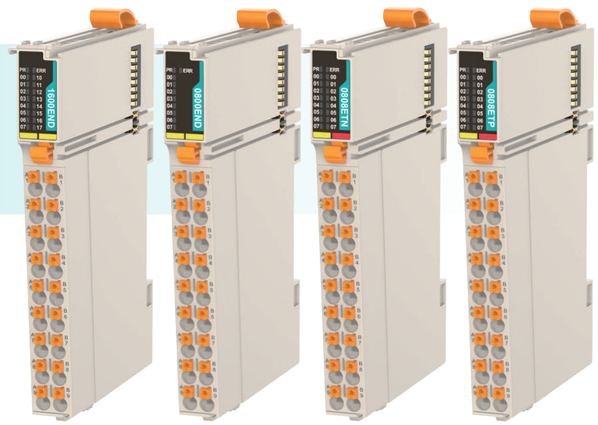
VM-RTU-ECT
communication interface module

Item	Description
expansion No.	16 including IO and special modules
Backplane bus	VBUS，VEICHI-defined
Backplane speed	100M
Communication period	Min. 125 microseconds
Backplane bus compatibility	Compatible communication protocol between remote module and local module
Backplane communication method	Hand-in-hand express forwarding
EtherCAT interface	IN： EtherCAT input port OUT： EtherCAT output port connected to EtherCAT slave
Input power rated voltage to terminal	24V DC（20.4V DC~ 28.8V DC）
Input power rated current to terminal	0.6A (typical at 24V)
Power output derating	85% derating at 55℃
Isolation	24V not isolated from the digital circuit, digital circuit isolated from analog circuit
Power protection	Overcurrent protection, anti-reverse connection protection, surge absorption
Alias access	Support alias access for ECTA, and setting site alias in the background for ECT. Alias access and setting for the expansion module connected behind ECT is not supported. Range: 1~65535
Input PDO number	Max. 1024 bytes
Output PDO number	Max. 1024 bytes
Input mailbox	Max. 256 bytes
Output mailbox	Max. 256 bytes
IO mapping	Bit-by-bit access, byte-by-byte access, word-by-word access
Shutdown output mode	Output by fault stop status mode and preset value, no more refreshing

VM-RTU-PN
communication interface module

Item	Description
Communication mode	RT mode
Min. communication period	1ms
I&M data	I&M -I&M3
PROFINET version	V2.3
Extendibility	16 modules
PROFINET interface No.	2
PROFINET switch function	Networking
Physical layer	100BASE-TX
Communication rate	10 Mbit/s (standard Ethernet), 100 Mbit/s (PROFINET)
Communication method	Full-duplex
Topology	Linear, star, tree
Transmission medium	Cat 5 and above
Transmission distance	Below 100 meters between two nodes
Prior start	YES
Port disabling	YES
No configuration required for device replacement	YES (same PN module)
Main module reset	YES
Module reset	No
Main module firmware upgrade	YES

Digital input module specification



VM-1600END
16-way digital input module

VM-0800END
8-way digital input module

VM-0808ETN
8-way digital input module
8-way digital transistor NPN output module

VM-0808ETP
8-way digital input module
8-way digital transistor PNP output module

Item	Description
Signal input method	Source/Drain setting via S/S terminal
Isolation	Insulated isolation with optocouplers
Input voltage	24V DC
Input current	Typical 4mA
Input impedance	Reference value 6k
ON voltage	>15V DC
OFF voltage	<5V DC
Response time	100us
Software filter time	Filter time group selection (no filter 0.25ms, 0.5ms, 1ms (factory setting), 2ms, 4ms, 8ms, 16ms, 32ms)
Ambient working temperature	-20℃~55℃
Rated current of bus input power supply	100mA (typical at 5V DC)
Module hot-swapping	No

Digital output module specification

VM-0016ETN
16-way digital transistor NPN output module

VM-0016ETP
16-way digital transistor PNP output module

VM-0008ETN
8-way digital transistor NPN output module

VM-0008ETP
8-way digital transistor PNP output module

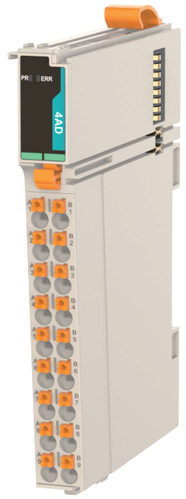
VM-0808ETN
8-way digital input module
8-way digital transistor NPN output module

VM-0808ETP
8-way digital input module
8-way digital transistor PNP output module

Item	Description
Signal output method	Source/Drain on different models
Isolation	Insulation isolated with opto-coupler Input voltage
Output voltage	24V DC
Output load (resistive load)	0.5A/interface, 2A/ module
Output load (inductive load)	7.2W/ interface, 12W/module
Output load (lamp load)	5W/interface, 9W/module
Response time	100us
Motion indicator	Indicator on when the optocoupler is driven
Leakage current in open circuit	＜ 0.1mA/30V DC
Min. load	5mA（5～24V DC）
Protection	Short-circuit protection
Ambient working temperature	-20℃~55℃
Rated current of bus input power supply	100mA (typical at 5V DC)
Module hot-swapping	No

Analog input module specification

Item	Description
Input type	Analog
Isolation	Analog and digital circuits isolated with opto-couplers. Analog internally isolated from input power 24V DC. No isolation between analog channels
Input method	Voltage / Current
Input channel	4/8
Resolution	16-bit
Switching time	60us/ channel
Voltage input range	±10V，0~10V，±5V，0~5V，1~5V
Voltage input impedance	1MΩ
Voltage input accuracy（25℃）	±0.1% (full-scale)
Voltage input limit	No disconnection detection
Current input range	±20mA，0~20mA，4~20mA
Current sampling impedance	250Ω
Current input accuracy（25℃）	±0.1% (full-scale)
Current input limit	Instantaneous ±30mA, average ±24mA
Current input diagnosis	Disconnection detection supported at 4~20mA only
Ambient working temperature	-20℃~55℃
Rated current of bus input power	120mA(typical at 5V DC)
Module hot-swapping	No

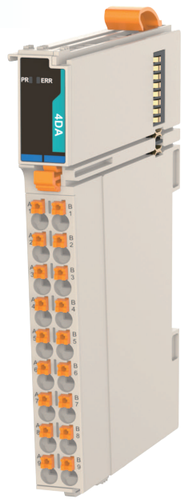


VM-4AD

4-way analog input module

Analog output module specification

Item	Description
Output type	Analog
Isolation	Analog and digital circuits isolated with opto-couplers. Analog internally isolated from input power 24V DC. No isolation between analog channels
Output method	Voltage / Current
Output channel	4/8
Resolution	12-bit
Switching time	250us/ channel
Voltage output range	±10V，0~10V，±5V，0~5V，1~5V
Voltage output impedance	1KΩ
Voltage output accuracy（25℃）	±1% (full-scale)
Voltage output diagnosis	Short circuit detection, over temperature protection
Current output range	0~20mA，4~20mA
Current output load	0~600Ω
Current output accuracy（25℃）	±1% (full-scale)
Current output diagnosis	Open circuit detection, over temperature protection
Rated current of bus input power	80mA (typical at 5V DC)
Module hot-swapping	No

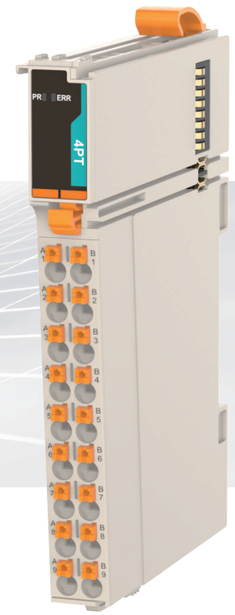


VM-4DA

4-way analog output module

Temperature detection module - RTD input

Item	Index			
	Celsius（℃）		Fahrenheit（℉）	
Input signal	RTD type: Pt100, Pt500, Pt1000, Cu100, KTY84, NTC5K, NTC10K,a total of 4 channels			
Sampling cycle	250ms, 500ms, 1000ms/4 channels (configurable via software)			
Rated temperature range	Pt100	-200.0℃~850.0℃	Pt100	-328.0℉~1562.0℉
	Pt500	-200.0℃~850.0℃	Pt500	-328.0℉~1562.0℉
	Pt1000	-200.0℃~850.0℃	Pt1000	-328.0℉~1562.0℉
	Cu100	-50.0℃~150.0℃	Cu100	-58.0℉~302.0℉
	KTY84	0.0℃~200.0℃	KTY84	32.0℉~392.0℉
	NTC5K（B value 2000）	-30.0℃~200.0℃	NTC5K（B value 2000）	-22.0℉~392.0℉
	NTC5K（B value 3950）	-15.0℃~100.0℃	NTC5K（B value 3950）	5.0℉~212.0℉
	NTC5K（B value 6000）	0.0℃~100.0℃	NTC5K（B value 6000）	32.0℉~212.0℉
	NTC10K（B value 2000）	-25.0℃~200.0℃	NTC10K（B value 2000）	-13.0℉~392.0℉
	NTC10K（B value 3950）	0.0℃~150.0℃	NTC10K（B value 3950）	32.0℉~302.0℉
	NTC10K（B value 6000）	6.0℃~100.0℃	NTC10K（B value 6000）	42.8℉~212.0℉
Min. resolution	0.2℃，0.36℉			
Precision	±0.5% of full scale			
Isolation	Analog and digital circuits isolated with opto-couplers. Analog internally isolated from input power 24V DC. No isolation between analog channels			
Rated voltage of bus input power	5V DC（DC4.75V DC– 5.25V DC）			
Rated current of bus input power	120mA (typical at 5V DC)			
Module hot-swapping	No			



VM-4PT

4-way input RTD temperature detection module

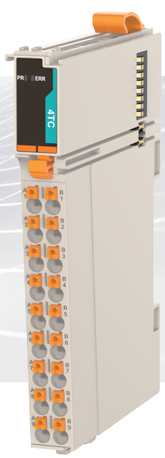
Temperature detection module -TC input

Item	Index			
	Celsius （℃）		Fahrenheit （℉）	
Seized I/O nodes	No			
Input signal	Thermocouple: K, J, E, N, T, R, S (7 kinds of each channel available), a total of 4 channels			
Switching speed	(240±2%) ms × 4 channels (no conversion for disabled channels)			
Rated temperature range	K	- 100℃ ~ 1200℃	K	- 148℉ ~ 2192℉
	J	- 100℃ ~ 1000℃	J	- 148℉ ~ 1832℉
	E	- 100℃ ~ 1000℃	E	- 148℉ ~ 1832℉
	N	- 100℃ ~ 1200℃	N	- 148℉ ~ 2192℉
	T	- 200℃ ~ 400℃	T	- 328℉ ~ 752℉
	R	0℃ ~ 1600℃	R	32℉ ~ 2912℉
	S	0℃ ~ 1600℃	S	32℉ ~ 2912℉
Min. resolution	K	0.8℃	K	1.44℉
	J	0.7℃	J	1.26℉
	E	0.5℃	E	0.9℉
	N	1℃	N	1.8℉
Min. resolution	T	0.2℃	T	0.36℉
	R	1℃	R	1.8℉
	S	1℃	S	1.8℉
Overall accuracy calibration point	±0.5% of full scale			
Isolation	Analog and digital circuits isolated with opto-couplers. Analog internally isolated from input power 24V DC. No isolation between analog channels			
Rated voltage of bus input power	5V DC（DC4.75V DC– 5.25V DC）			
Rated current of bus input power	120mA (typical at 5V DC)			
Module hot-swapping	No			

Note: both ℃ and ℉ data are available via proper settings

VM-4TC

4-way input TC temperature detection module



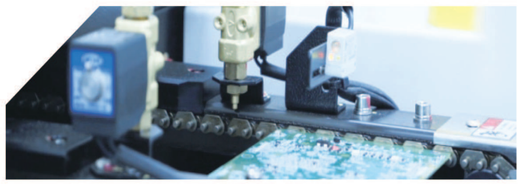
Manufacturing and Quality Control

Smart manufacturing with whole-process automation

- On intelligent manufacturing ,the smart factory yields an annual capacity of 600,000 sets;
- Fully automatic SMT production line, automatic coating line, assembly line, testing line, packaging line, high temperature aging room and advanced production equipment are established;
- Enterprise production is implemented with target management and is operated in strict accordance with the production process and management methods, which greatly improves the production efficiency.
- Complete supply chain system meets the large volume of one-time delivery.

Inheriting the spirit of craftsmanship, detail-oriented and striving for better

- Insist on the quality policy and concept of quality first.
- Procurement, design, manufacturing and other aspects all implemented in strict accordance with the requirements of the ISO9001 quality management system.
- Talents create high quality, the production line core positions are occupied by 100% college degrees and above.
- Each product has a unique product code, which can be used in the product traceability system to ensure quality can be controlled and traced.



ISO9001:2015
ISO14001:2015
ISO45001:2018

CE certification for full series

3C certification for specialized products

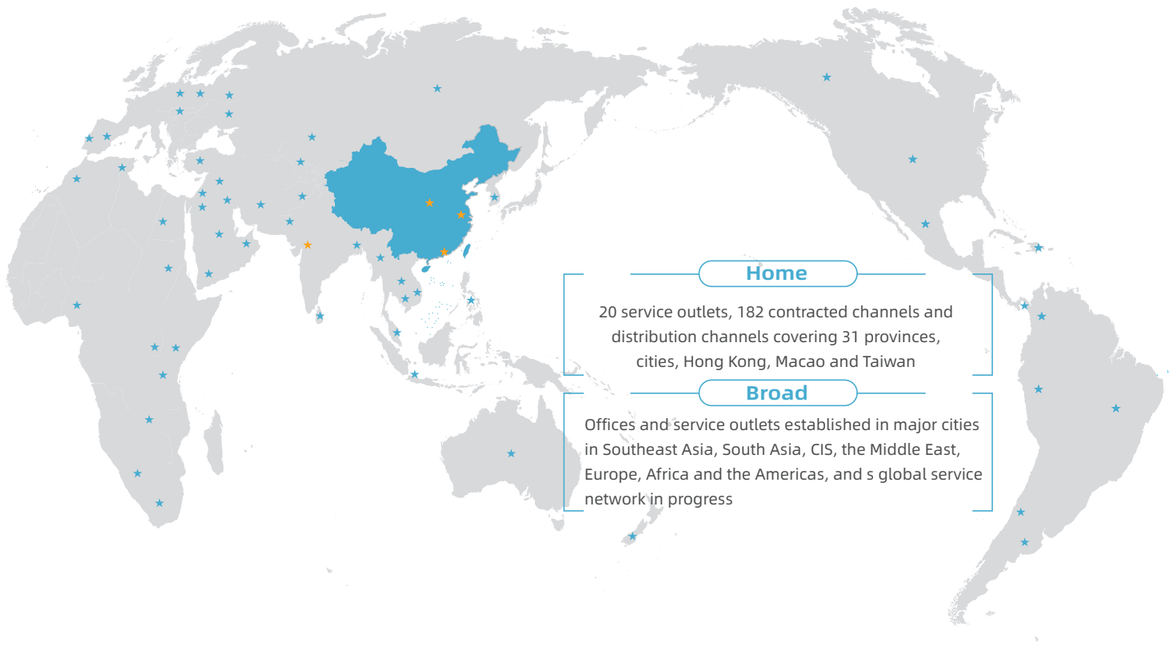
RoHS 2.0 for customized products

AAA Certification for Measurement Management System

Five-star certification for after-sales service

QC080000 Management System

Service and Support



Home

20 service outlets, 182 contracted channels and distribution channels covering 31 provinces, cities, Hong Kong, Macao and Taiwan

Broad

Offices and service outlets established in major cities in Southeast Asia, South Asia, CIS, the Middle East, Europe, Africa and the Americas, and s global service network in progress

01 **Pre-sales**
technology promotion, site survey, proposal design, energy saving assessment

02 **During-sales**
customization, design consultation, installation and commissioning, on-site training

03 **After-sales**
regular return visits, regular maintenance, timely repairs, application instruction