三友继电器
SANYOU RELAYS

Establishing first-class quality,
striving for the best in the world
and building Sanyou a century-old enterprise

三友继电器
SANYOU RELAYS

Sanyou Corporation Limited

Add：No.27, Center 2 Road, Puxinhu, Tangxia Town, Dongguan, Guangdong,
Tel：+86-769-85911599
E-mail：symmc01@sanyourelay.com
www.sanyourelay.com

Tiktok

WeChat
official account

WeChat
channels

三友继电器
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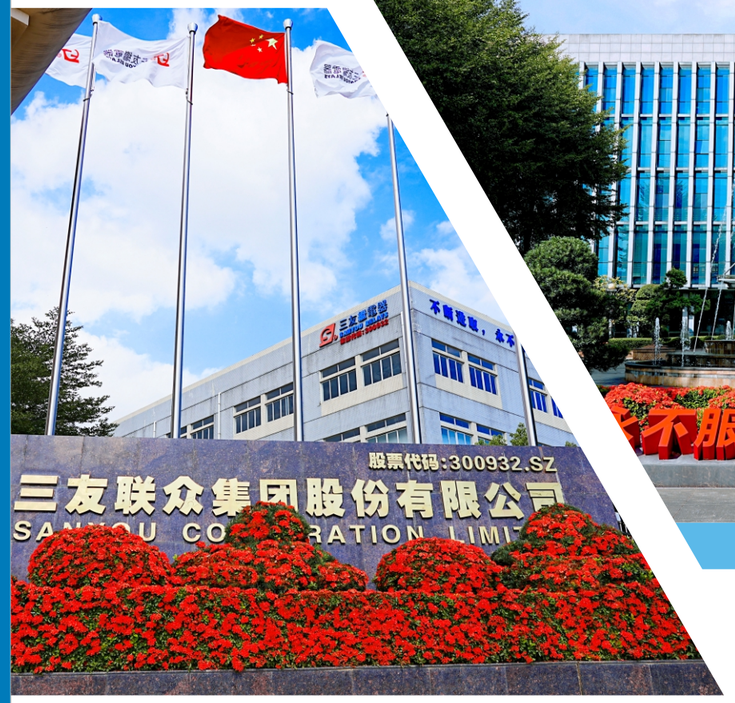
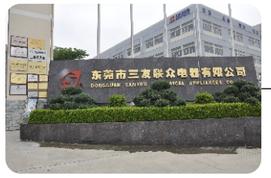
StockCode：300932.SZ



Catalogue

Sanyou Corporation Limited



2008

- Dongguan Sanyou electrical appliances Co., Ltd was established

2009

- Ningbo Yongyou was established
- Shenzhen branch was established

2010

- Sanyou was awarded as national hi-tech enterprise
- Sanyou was awarded Top 50 private industrial enterprise in Dongguan
- Mingguang Wanjia was established

2011

- Sanyou was awarded as national hi-tech enterprise
- Sanyou was awarded China Top 100 electronic component enterprise
- Sanyou South Korea was established
- Sanyou North American was established

2012

- Sanyou keep rating of China Top 100 electronic component enterprise
- Sanyou was identified as the sixth batch of IPO backup enterprises in Dongguan
- Sanyou lab was certificated as UL WTDP
- Mingguang Sanyou was awarded excellent performance enterprise in Anhui province

2013

- Sanyou was awarded observing contract and valuing creditenterprise in Guangdong
- Sanyou was awarded Dongguan excellent enterprise
- Sanyou was awarded the second prize of science and technology progress in Dongguan
- Sanyou was awarded the excellent employer enterprise in Dongguan

2014

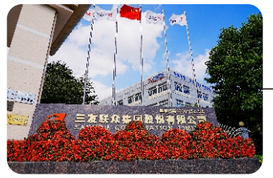
- Sanyou was awarded the first AAA credit enterprise in China electronic component industry
- Sanyou was awarded Guangdong famous trademark
- Sanyou was awarded model employer responsibility enterprise in Guangdong province
- Sanyou lab was certificated as VDE TDAP
- Sanyou lab was certificated by CNAS National lab

2015

- Sanyou was awarded the 44th of China Top 100 electronic components companies
- Sanyou was awarded Guangdong outstanding enterprise
- Sanyou was awarded Dongguan high-integrity enterprise
- Sanyou Europe sales company was established
- Shanghai branch was established
- Takeover Hangzhou Qiyou

2016

- Sanyou was awarded the 47th of the 29th China Top 100 electronic components companies
- Sanyou was awarded hi-tech enterprise
- Sanyou was awarded Guangdong Demonstration enterprises of independent innovation
- Sanyou was awarded independent innovation benchmarking enterprise



2017

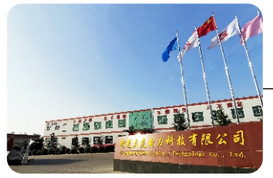
- Dongguan Sanyou electrical appliance Co.,Ltd change name to “Sanyou Corporation Limited”
- Sanyou was awarded the 53rd of the 30th China Top 100 electronic components companies
- Sanyou was awarded intellectual property advantage enterprise in Guangdong
- Pancun branch was established

2018

- Sanyou was awarded the 53rd of the 31th 2018 China Top 100 electronic components
- Sanyou was awarded the AAA credit enterprise
- Sanyou was awarded observing contract and valuing credit enterprise in Guangdong

2019

- Sanyou parts manufacturing industrial zone started
- Ningbo Yongyou II production expansion project started
- Sanyou was awarded the 53th of the 32th China Top 100 electronic components companies



2020

- Mingguang Sanyou Electric Appliance Co., Ltd. was established
- Sanyou Lianzhong won the 49th place in China's top 100 electronic components in 2020
- Sanyou Lianzhong ranks 324th among the top 500 manufacturing enterprises in Guangdong Province in 2020

2021

- Sanyou Lianzhong was listed on the Shenzhen Stock Exchange under ChiNext Index
- Sanyou Lianzhong acquired Qingxian Zeming Langxi Electrical Appliances Co,Ltd
- Sanyou Lianzhong ranked No.206 on the Manufacturing Enterprise List of Guangdong in 2021
- 2nd Plant Construction of Ningbo Yongyou Electronics Co, Ltd was completed and put into production

2022

- 2nd Plant Construction of Sanyou Lianzhong Corporation Co,Ltd in Dongguan was completed and put into production
- 2nd Plant Construction of Qingxian Zeming Langxi Electrical Appliances Co,Ltd, covering 130,000m^2, was started

2023

- Sanyou Electric Appliances (Vietnam) company limited was registered
- Sanyou acquired new land for headquarter building
- Sanyou was awarded as intellectual property advantage enterprise

Catalogue

Selection table

Electrical terminals: for PCB	SMT	for sockets	connectors	screw terminals	spring terminals	Coil/input: AC	DC	AC/DC	bistable DC	Type	Numberand type of contacts / outputs CO-changeover NO-normally open NC-normall closed	Rated current [A] 5	10	20	30	40
General power relay																
										SRB	1NO	5A				
										SRC	1NO	5A				
										SRCH	1NO	7A				
										SJ-M (3, 5A)	1NO		0.2W: 3A,0.45W: 5A			
										SJ-MH (10A)	1NO			0.2W :8A,0.45W : 10A		
										SJ-16A	1NO			16A		
										SJE (5A)	1CO,1NO,1NC		1CO: (NO: 5A,NC: 3A) 1NO: (NO: 5A) 1NC: 5A			
										SJE-H (10A)	1CO,1NO			1CO: (NO: 10A, NC: 5A) 1NO: (NO: 10A)		
										SRD	1CO,1NO,1NC			10A		
										SRDI	1CO,1NO,1NC			10A		
										SRD (l)-L	1CO,1NO			12A , 17A		
										SRDC	1CO,1NO			10A		
										SRG	1CO,1NO,1NC			17A		
										SPA	1NO			10A, 16A		
										SM-1P-T	1CO,1NO			12A		
										SM-1P	1CO,1NO			16A		
										SM-1P-H	1CO,1NO			12A		
										SM-2P	2CO,2NO		8A			
										SMF	1NO,1NC			16A		
										SMH	1NO			16A		
										SMI-1P	1CO,1NO		10A			
										SMI-2P	2CO,2NO	5A				
										SMIH	1CO,1NO			16A		
										SZ	1CO,1NO			16A		
										SFK (20A)	1NO			20A		
										SFK-E (25A)	1NO			25A		
										SLA	1CO,1NO,1NC		NO: 30A, NC: 15A, CO: 20A			
										SLA-G	1CO,1NO			NO: 40A		
										SLI-K	1CO,1NO,1NC		NO: 30A, NC: 15A, CO: 20A			
										SLC-K	1CO,1NO,1NC		NO: 30A, NC: 15A, CO: 20A			
										SFD	1NO			30A		
										SLG	1CO,1NO			NO: 40A		
										SRDA	1CO,1NO		10A			

Selection table

Electrical terminals								Coil/input				Type	Numberand type of contacts / outputs	Rated current					
for PCB	SMT	for sockets	connectors	screw terminals	spring terminals	customized terminal		AC	DC	AC/DC	bistable DC		CO-changeover NO-normally open NC-normall closed	[A]	5	20	40	80	200
Signal relay																			
												SYS	1CO		1A				
												SYS1	1CO			3A			
												SYS1K	1NO,1CO			3A			
												DSY2Y	2CO		1A				
Magnetic latching relay																			
												WJ31N	1CO,1NO				40A		
												WJ31H	1CO,1NO					60A	
												WJ31J	1CO,1NO					60A	
												WJ31V	1CO,1NO					60A	
												WJ31A	1CO,1NO					80A	
												WJ31F	1CO,1NO					80A	
												WJ31D	1CO,1NO					90A	
												WJ31P	1CO,1NO					90A	
												WJ31S	1CO,1NO					90A	
												WJ31W	1CO,1NO					100A	
												WJ31K	1CO,1NO					100A	
												WJ302	1CO,1NO					100A	
												WJ31X	1CO,1NO					120A	
												WJ31T	1CO,1NO					120A	
												WJ31G	1CO,1NO					120A	
												SY31P-D	1CO,1NO				63A		
												SY31K-D	1CO,1NO					100A	
												SY32J	2CO,2NO					80A	
												WJ32D	2CO,2NO					80A	
												WJ32K	2CO,2NO					120A	
												SY32F	2CO,2NO						200A
												WJ33L	3CO,3NO					80A	
												WJ33F	3CO,3NO					90A	
												WJ33D	3CO,3NO					120A	
												WJ33E	3CO,3NO					120A	
												WJ33G	3CO,3NO					120A	
												WJ33K	3CO,3NO					120A	
												SRDK	1CO,1NC		15A				
												SM-K	1CO,1NO,1NC		16A				
												WJ32A	1CO,2NO,1CO+1NO		8A				
												WJ32C	2CO,2NO,1CO+1NO		16A				
												WJ32M	1CO,1NO,1NC 2CO,2NO,2NC		16A				
												WJ106	1CO,1NO,1NC		5A				

Selection table

Electrical terminals							Coil/input				Type	Numberand type of contacts / outputs	Rated current					
for PCB	SMT	for sockets	connectors	screw terminals	spring terminals	one-touch terminal	AC	DC	AC/DC	bistable DC		CO-changeover NO-normally open NC-normall closed	[A]	10	60	100	200	400
Photo-voltaic relay																		
											SMIA	2a/2c	10A					
											SMIA-G	2a/2c	16A					
											SMIC	1a		35A				
											SMIC-G	1a		45A				
											SLE	1a		35A				
											SLE-U	1a		45A				
											SMIC-T	1a		50A				
											SMIC-Z	1a		55A				
											SLE-T	1a		60A				
											SPV75	1a		75A				
											SPV90	1a			90A			
											SPV100	1a			100A			
											SPV150B	1a				150A		
											SPV150	1a				150A		
											SPV200B	1a					200A	
											SPV200	1a					200A	
											SPV270	1a						270A
											SPV270-G	1a						270A
											SPV40	2a (with auxiliary contact)		40A				
											SCP40	4a (with auxiliary contact)		40A				
											SET40	2-NO		40A				
High voltage DC relay																		
											SEF20	NO		20A				
											SEF40	NO		40A				
											SEF200	NO					200A	
											SEL100B	NO				100A		
											SEL100D	NO				100A		
											SEL150B	NO					150A	
											SEL150D	NO					150A	
											SEL200B	NO					200A	
											SEL200D	NO					200A	
											SEL200	NO					200A	
											SEL200F	NO					200A	
											SEL250F	NO					250A	
											SEL250B	NO					250A	
											SEL250	NO					250A	
											SEL250BS	2NO					250A	
											SEL300B	NO						300A
											SEL300	NO						300A
											SEL400B	NO						400A

Selection table

Electrical terminals							Coil/input				Type	Numberand type of contacts / outputs	Rated current					
for PCB	SMT	for sockets	connectors	screw terminals	spring terminals	one-touch terminal	AC	DC	AC/DC	bistable DC		CO-changeover NO-normally open NC-normall closed	[A]	10	60	100	200	400
High voltage DC relay																		
				■				■			SEL400	NO						400A
				■				■			SEC150	NO				150A		
				■				■			SEC150Y	NO				150A		
				■				■			SEC250	NO					250A	
				■				■			SEC300Y	NO					300A	
				■				■			SEC350	NO						350A
				■				■			SEV40	NO		40A				
				■				■			SES60	NO			60A			
				■				■			SES60B	NO			60A			
						■		■			SEP20	NO		20A				
						■		■			SEP40	NO		40A				
				■				■			SEP150	NO				150A		
				■				■			SEP250	NO					250A	
				■				■			SEP350	NO						350A
				■				■			SEP400	NO						400A
Automotive relay																		
■								■			SARI	CO1、NO1		25A				
■								■			SAF7	NO1		30A				
■								■			SAF9	CO1、NO1、NO2			50A			
		■						■			SARC	CO1、NO1		35A				
		■						■			SARS	CO1、NO1		35A				
■								■			SARB	CO1、NO1		40A				
■		■						■			SARN	CO1、NO1		50A				
■		■						■			SARJ	NO1			70A			
■		■						■			SARF	NO1			70A			
				■				■			SAR18	NO1				100A		
				■						■	SY200	NO1					250A	
Industrial relay																		
■		■							■		SME-1P	1CO,1NO		15A				
■		■							■		SME-2P	2CO,2NO		10A				
■		■							■		SMET-2P	2CO		5A				
■		■							■		SMET-3P	3CO		5A				
■		■							■		SMET-4P	4CO		5A				

Selection table

Electrical terminals						Coil/input				Type	Numberand type of contacts / outputs	Rated current					
for PCB	SMT	for sockets	connectors	screw terminals	spring terminals	AC	DC	AC/DC	bistable DC		CO-changeover NO-normally open NC-normall closed	[A]	5	10	15	20	40
Transformer																	
■										ZMDCT37			5A				
■										ZMDCT58			5A				
■										ZMDCT115A			5A				
		■								ZMDCT94C-1			5A				
		■								ZMDCT215			5A				
		■								ZMDCT119				10A			
■										ZMDCT147			5A				
		■								ZMCT CB-88				10A			
■										ZMCT CB-94			5A				
			■							ZMCT CB-95			5A				
		■								ZMCT CB-48E			5A				
		■								ZMCT CB-75B				10A			
		■								ZMCT CB-75C			5A				
■										ZMCT CA-6			1A				
■										ZMCT CA-6B			5A				
■										ZMCT CA-6D			5A				
			■							ZMCT CA-6H			1.5A				
		■								ZMCD08-3A			1A				
		■								ZMCD31			1.5A				
		■								ZMCD38			1A				
			■							ZMXQD05			5A				
■										ZMXQD08-3							25A
		■								ZMXQD20			5A				
		■								ZMXQD44			5A				
■										ZMXQD45			5A				
		■								ZMXQD50				10A			
■										ZMC-N3-4			1.5A				
■										ZMC-R3-2			1.5A				
■										ZMCT101B			5A				
■										ZMCT102			5A				
■										ZMCT102W			5A				
■										ZMCT103			5A				
■										ZEMCT131			5A				
■										ZMCT115M			5A				
■										ZMCT116C			5A				
■										ZMCT118A			5A				
■										ZMCT123			5A				
■										ZMCT134			5A				
■										ZMCT156			5A				
■										ZMCT205D			5A				
■										ZMCT206-1500			6A				
■										ZMCT238							30A

Selection table

Electrical terminals						Coil/input				Type	Numberand type of contacts / outputs	Rated current					
for PCB	SMT	for sockets	connectors	screw terminals	spring terminals	AC	DC	AC/DC	bistable DC		CO-changeover NO-normally open NC-normall closed	[A]	5	10	15	20	40
Transformer																	
										ZMCT251C						30A	
										ZMCT303S			5A				
										ZMCT350B				10A			
										ZMCT356			5A				
										ZMCT360			5A				
										ZMXQ181B			3.25/3.25/3.77V				
										ZMXQ248			1.5A				
										ZMXQ256			5A				
										ZMCT305							
										ZMCT306							
										ZMCT306-1							
										ZMCT307							
										ZMCT307-1							
										ZMCT308							
										ZMCT308-1							
										ZMCT309							
										ZM-LX25							
										ZM-LX45							
										ZM-LX60							
										ZM-LX75							
										ZM-LX80							
										ZM-LX100							
										ZM-LXCT04							
										ZM-LXCT08			30mA				
										ZM-LXCT31			1A				
										ZM-LXCT35			18mA, 21mA				
										ZMCTLF01			1A				
										ZMCTLF02			1A				
										ZMCTLF03			1A				
										ZMCTLF04			1A				
										ZMCTLF05			1A				
										ZMCTLY-30			1A				
										ZMCTLY-46			1A				
										ZMCTLY-80			1A				
										ZMCTLY-100			1A				
										ZMCTLY-120			1A				
										ZMCTLY-150			1A				
										ZMCTLY-200			1A				
										ZMCTLKX-30			1A				
										ZMCTLKX-45			1A				
										ZMCTLKX-65			1A				
										ZMCTLKX-80			1A				

Selection table

Electrical terminals						Coil/input				Type	Numberand type of contacts / outputs	Rated current					
for PCB	SMT	for sockets	connectors	screw terminals	spring terminals	AC	DC	AC/DC	bistable DC		CO-changeover NO-normally open NC-normall closed	[A]	5	10	15	20	40
Transformer																	
										ZMCTLKX-100		1A					
										ZEMCTK04							
										ZEMCTK05							
										ZEMCTK08							
										ZEMCTK09							
										ZEMCTK13							
										ZEMCTK17							
										ZEMCTK18							
										ZEMCTK19							
										ZEMCTK20							
										ZEMCTKCB01							
										ZEMCTKCB02							
										ZEMSCT13							100A
										ZEMSCT22							100A
										ZEMSCT24							
										ZEMSCT25							
										ZEMSCT30							
										ZEMSCT35							
										ZEMSCT36							
										ZEMSCT45							
										ZEMSCT65							
										ZEMSCT100							
										ZM-TPTA serie							
										ZM-GPT serie							
										ZM-BPT serie							
										ZM-RPT serie							
										ZMPT101B		2mA					
										ZMPT107-1		2mA					
										ZMPT112		2mA					
Common mode chock																	
										SY25TN	15mH Max.	10A/12A/14A/16A					
										SY32TN	16mH Max.	16A/18A/22A/25A					
										SY36TN	23mH Max.	16A/18A/22A/25A					
										SY40TN	25mH Max.	18A/22A/25A/35A					
										SY25TF	6.5mH Max.	8A/10A/12A					
										SY32TF	5mH Max.	10A/12A					
										SY36TF	10mH Max.	8A/10A/12A					
										SY40TF	2mH Max.	18A/22A					
										SY29TF	15mH Max.	6A/8A/10A					
										SY31TF	7.2mH Max.	10A/12A/14A					
										SY13TF	0.12mH Max.	2A					

General power relay

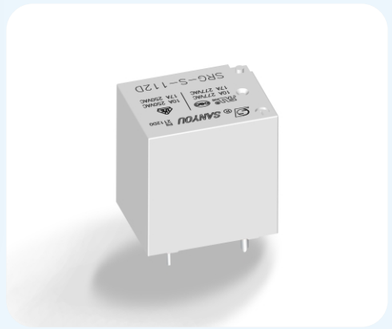
三友继电器 SANYOU RELAYS

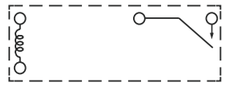
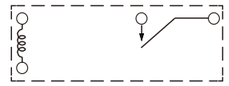
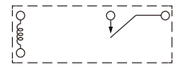
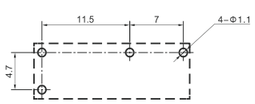
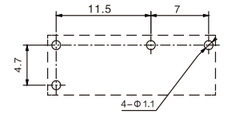
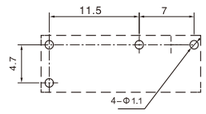
Feature

- Contact switching current: 3A - 40A
- Contact rating: 125VAC/ 250VAC / 277VAC;
- Coil power: 0.2W~1.4W;
- Certifications:CQC / UL / VDE / TUV.

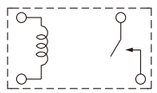
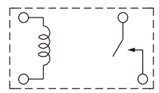
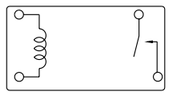
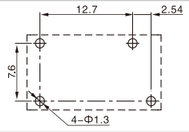
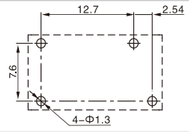
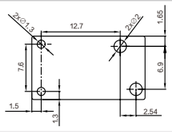
Applications:

- Appliances
- Audios
- Smart appliances
- Industrial controller
- Self-service vending machine
- Charging pile, photo-voltaic
- Safety equipment

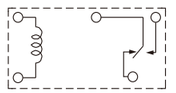
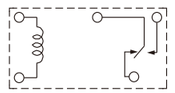
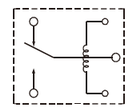
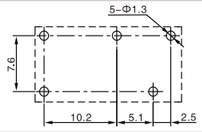
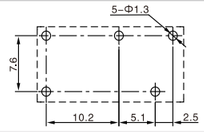
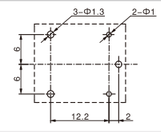


				
Type		SRB	SRC	SRCH
Exterior dimensions, Length * Width * Height(mm)		20.5×7.0×15.1	20.5×7.2×16.6	20.5×7.2×16.6
Contact form		1a	1a	1a
Contact switching current		5A	5A	7A
Contact rating		5A 277VAC 1/8HP 240VAC 3A 277VAC TV-3 120VAC 3A 30VDC	5A 277VAC	7A 277VAC Tv-3 120VDC
Coil voltage		5/6/9/12/18/24	5/6/9/12/18/24	5/6/9/12/18/24
Coil power (w)		0.2/0.36	0.2/0.36	0.2/0.36
Contact resistance		≤100mΩ	≤100mΩ	≤100mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ
Endurance (times)	Mechanics	1×10^7	1×10^7	1×10^7
	Electrical	1×10^5	1×10^5	1×10^5
Dielectric Strength	Open contact	750VAC	750VAC	750VAC
	Coil contact	4000VAC	4000VAC	4000VAC
Ambient temperature		-40℃~85℃ (special item: -40℃~105℃)	-40℃~105℃	-40℃~105℃
Wiring diagram (bottom view)				
Outline dimension (mm)				
Installation form		Printed format	Printed format	Printed format
Unit weight		3.9g	3.9g	3.9g
Safety certification		cULus VDE CQC	cULus VDE CQC	cULus VDE CQC

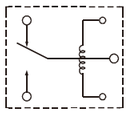
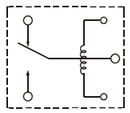
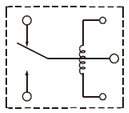
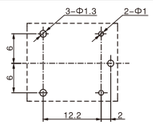
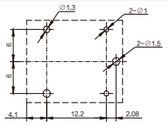
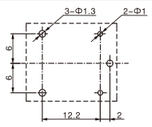
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		SJ-M(3,5A)	SJ-MH(8,10A)	SJ-16A
Exterior dimensions, Length * Width * Height(mm)		18.2×10.2×15.5	18.2×10.2×15.5	18.2×10.2×15.5
Contact form		1a	1a	1a
Contact switching current		0.2W 3A 0.45W 5A	0.2W 8A 0.45W 10A	16A
Contact rating		5A 250VAC 5A 28VDC	10A 250VAC 1/3HP 24VAC TV-5 120VAC	16A 277VAC TV-10
Coil voltage		3/5/6/9/12/18/24	3/5/6/9/12/18/24	3/5/6/9/12/18/24
Coil power (w)		0.2/0.45	0.2/0.45	0.2/0.4
Contact resistance		≤100mΩ	≤100mΩ	≤100mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ
Endurance (times)	Mechanics	1×10^7	1×10^7	1×10^7
	Electrical	1×10^5	1×10^5	5×10^4
Dielectric Strength	Open contact	1000VAC	1000VAC	1000VAC(0.4W) 750VAC(0.2W)
	Coil contact	4000VAC	4000VAC	4000VAC
Ambient temperature		-40℃~105℃	-40℃~105℃	-40℃~85℃
Wiring diagram (bottom view)				
Outline dimension (mm)				
Installation form		Printed format	Printed format	Printed format
Unit weight		5.6g	5.7g	5.78g
Safety certification		cULus CQC VDE TÜV	cULus CQC VDE TÜV	cULus CQC VDE TÜV

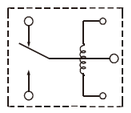
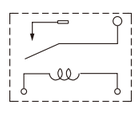
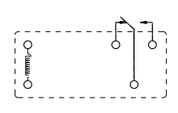
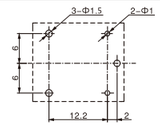
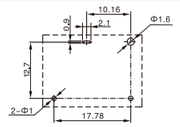
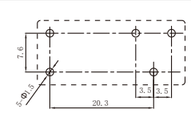
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		SJE(5A)	SJE-H(10A)	SRD
Exterior dimensions, Length * Width * Height(mm)		20.6×10.2×15.7	20.6×10.2×15.7	19.6×15.4×15.5
Contact form		1a,1c	1a,1c	1a,1b,1c
Contact switching current		5A	10A	10A
Contact rating		5A 277VAC 5A 30VDC TV-3 120VAC 1/6HP 277VDC	10A 277VAC 5A 30VDC TV-5 120VAC 1/6HP 277VAC	15A 125VAC 10A 250VAC 10A 28VDC TV-5 120VAC,N.O. 1/3HP 250VAC
Coil voltage		3/5/6/9/12/18/24/48	3/5/6/9/12/18/24/48	3/5/6/9/12/15/18/24/48/60
Coil power (w)		0.2/0.4/0.45	0.2/0.4/0.45	0.36
Contact resistance		≤100mΩ	≤100mΩ	≤100mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ
Endurance (times)	Mechanics	1×10^7	1×10^7	1×10^7
	Electrical	1×10^5	1×10^5	1×10^5
Dielectric Strength	Open contact	1000VAC	1000VAC	750VAC
	Coil contact	4000VAC	4000VAC	1500VAC
Ambient temperature		-40℃~105℃	-40℃~105℃	-40℃~85℃ special item: -40℃~105℃
Wiring diagram (bottom view)				
Outline dimension (mm)				
Installation form		Printed format	Printed format	Printed format
Unit weight		6.5g	6.5g	8.5g
Safety certification		cULus VDE CQC	cULus VDE CQC	cULus CQC VDE TÜV

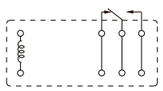
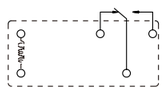
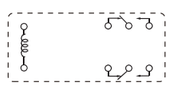
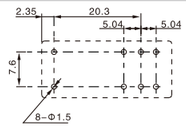
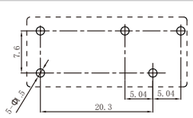
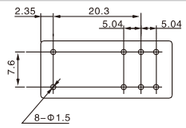
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

					
Type		SRDI	SRD(I)-L	SRDC	
Exterior dimensions, Length * Width * Height(mm)		19.6×15.4×15.5	19.6×15.4×15.5	18.8×15×15.3	
Contact form		1a,1b,1c	1a,1c	1a,1c	
Contact switching current		10A	17A	10A	
Contact rating		15A 125VAC 10A 250VAC 10A 28VDC TV-5 120VAC,N.O. 1/3HP 250VAC	17A 277VAC 12A 277VAC TV-8 120VAC 1/2HP 120VAC	10A 277VAC	
Coil voltage		3/5/6/9/12/15/18/24/48/60	3/5/6/9/12/15/18/24/48/60	3/5/6/9/12/15/18/24/48/60	
Coil power (w)		0.36	0.36	0.36	
Contact resistance		≤100mΩ	≤100mΩ	≤100mΩ	
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ	
Endurance (times)	Mechanics	1×10^7	1×10^7	1×10^7	
	Electrical	1×10^5	1×10^5	1×10^5	
Dielectric Strength	Open contact	750VAC	750VAC	750VAC	
	Coil contact	2500VAC	1500VAC/2500VAC	1500VAC	
Ambient temperature		-40℃~85℃ special item: -40℃~105℃	-40℃~105℃	-40℃~85℃	
Wiring diagram (bottom view)					
Outline dimension (mm)					
Installation form		Printed format	Printed format	Printed format	
Unit weight		8.0g	8.0g	7.0g	
Safety certification		cULus VDE CQC	cULus VDE CQC	cULus VDE CQC	

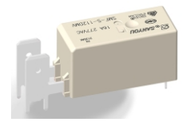
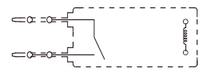
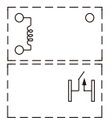
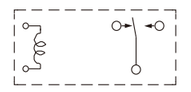
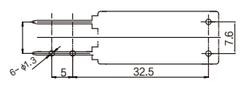
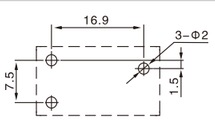
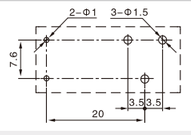
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

					
Type		SRG	SPA	SM-1P-T	
Exterior dimensions, Length * Width * Height(mm)		21.0×16.0×21.8	23.0×16.1×10.2	29×12.7×15.7	
Contact form		1a,1c,1b	1a	1a,1c	
Contact switching current		17A	16A	12A	
Contact rating		20A 125VAC 17A 277VAC 10A 277VAC TV-8 125VAC 1HP 125VAC	16A 250VAC 10A 250VAC 10A 24VDC	12A 250VAC 3/4HP 480VAC	
Coil voltage		5/6/9/12/18/24/36/48	3/5/6/9/12/18/24	5/6/9/12/18/24/48/60/110	
Coil power (w)		0.36	0.2	0.4	
Contact resistance		≤100mΩ	≤100mΩ	≤100mΩ	
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ	
Endurance (times)	Mechanics	1×10^7	1×10^7	1×10^7	
	Electrical	1×10^5	1×10^5(10A) 5×10^4(16A)	1×10^5	
Dielectric Strength	Open contact	1000VAC	1000VAC	1000VAC	
	Coil contact	2500VAC	2500VAC	5000VAC	
Ambient temperature		-40℃~105℃	-40℃~85℃ special item: -40℃~105℃	-40℃~85℃	
Wiring diagram (bottom view)					
Outline dimension (mm)					
Installation form		Printed format	Printed format	Printed format	
Unit weight		15g	8.6g	13.5g	
Safety certification		cULus VDE CQC	cULus CQC TÜV	cULus VDE CQC	

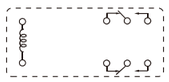
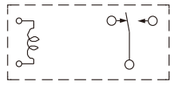
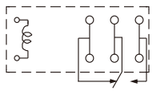
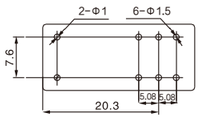
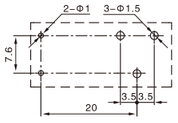
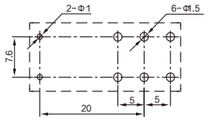
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		SM-1P	SM-1P-H	SM-2P
Exterior dimensions, Length * Width * Height(mm)		29×12.7×15.7	29×12.7×15.7	29×12.7×15.7
Contact form		1a,1c	1a,1c	2a,2c
Contact switching current		16A	12A	8A
Contact rating		16A 250VAC 1HP 480VAC	12A 250VAC 3/4HP 480VAC	8A 250VAC 8A 30VDC 1/4HP 120VAC
Coil voltage		5/6/9/12/18/24/48/60/110	5/6/9/12/18/24/48/60/110	5/6/9/12/18/24/48/60/110
Coil power (w)		0.4	0.4	0.4
Contact resistance		≤100mΩ	≤100mΩ	≤100mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ
Endurance (times)	Mechanics	1×10^7	1×10^7	1×10^7
	Electrical	1×10^5	1×10^5	1×10^5
Dielectric Strength	Open contact	1000VAC	1000VAC	1000VAC
	Coil contact	5000VAC	5000VAC	5000VAC
Ambient temperature		-40℃~85℃ special item: -40℃~105℃	-40℃~85℃	-40℃~85℃
Wiring diagram (bottom view)				
Outline dimension (mm)				
Installation form		Printed format	Printed format	Printed format
Unit weight		13.5g	13.5g	13.5g
Safety certification		cULus DE CQC	cULus DE CQC	cULus DE CQC

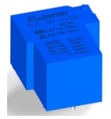
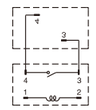
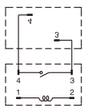
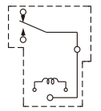
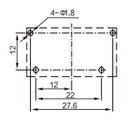
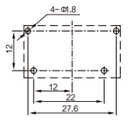
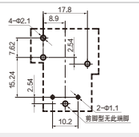
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		SMF	SMH	SMI-1P
Exterior dimensions, Length * Width * Height(mm)		Vertical：40.4×12.7×15.7 Horizontal：44.4×12.7×15.7	22.7×12.2×27.8	29.2×12.8×20.6
Contact form		1a,1b	1a	1a,1c
Contact switching current		16A	16A	10A
Contact rating		16A 277VAC 16A 30VDC	16A 250VAC 16A 30VDC TV-8 120VAC	10A 250VAC TV-3 250VAC 1/3HP 120VAC 10A 30VDC
Coil voltage		5/6/9/12/18/24/48/60/110	5/6/9/12/18/24/48	5/6/9/12/18/24/48
Coil power (w)		0.4	0.5	0.54,0.72
Contact resistance		≤100mΩ	≤100mΩ	≤100mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ
Endurance (times)	Mechanics	1×10^7	1×10^7	1×10^7
	Electrical	1×10^5	1×10^5	1×10^5
Dielectric Strength	Open contact	1000VAC	1000VAC	1000VAC
	Coil contact	5000VAC	5000VAC	5000VAC
Ambient temperature		-40℃~105℃	-40℃~85℃	-40℃~85℃
Wiring diagram (bottom view)				
Outline dimension (mm)				
Installation form		Printed format, Quick connect type	Printed format, Quick connect type	Printed format
Unit weight		15.5g	15.8g	14g
Safety certification		cULus DE CQC	cULus CQC TÜV	cULus CQC DE TÜV

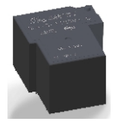
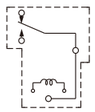
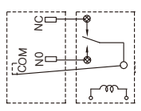
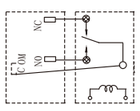
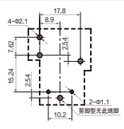
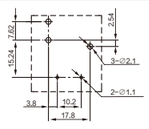
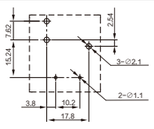
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		SMI-2P	SMIH	SZ
Exterior dimensions, Length * Width * Height(mm)		29.2×12.8×20.6	29.2×12.8×20.6	29.2×12.8×20.6
Contact form		2a,2c	1a,1c	1a,1c
Contact switching current		5A	16A	16A
Contact rating		8A 277VAC TV-3 120VAC 5A 24VDC 5A 250VAC	20A 120VAC 17A 277VAC 16A 250VAC 16A 30VDC 1/3HP 120VAC TV-8 240VAC	17A 277VAC 16A 250VAC 1HP 240VAC 1/2HP 120VAC TV-8 240VAC(N.O.)
Coil voltage		5/6/9/12/18/24/48	5/6/9/12/18/24/48	5/6/9/12/18/24/48
Coil power (w)		0.54,0.72	0.54,0.72	0.54,0.72
Contact resistance		≤100mΩ	≤100mΩ	≤100mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ
Endurance (times)	Mechanics	1×10^7	1×10^7	1×10^7
	Electrical	1×10^5	1×10^5	1×10^5
Dielectric Strength	Open contact	1000VAC	1000VAC	1000VAC
	Coil contact	5000VAC	5000VAC	5000VAC
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~85℃
Wiring diagram (bottom view)				
Outline dimension (mm)				
Installation form		Printed format	Printed format	Printed format
Unit weight		14g	14g	14g
Safety certification				

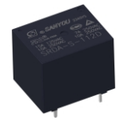
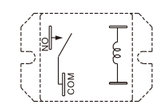
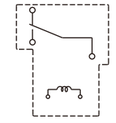
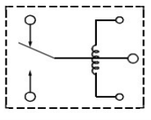
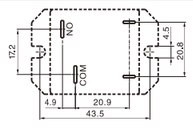
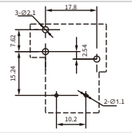
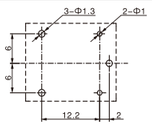
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		SFK (20A)	SFK-E (25A)	SLA
Exterior dimensions, Length * Width * Height(mm)		30.1×15.7×23.3	30.1×15.7×23.3	31.8×27.4×19.8
Contact form		1a	1a	1a,1b,1c
Contact switching current		20A	25A	30A
Contact rating		20A 250VAC 80A 250VAC (surge 0.3S) 2HP 240VAC TV-10 120VAC	25A 250VAC 80A 250VAC (surge 0.3S) 2HP 240VAC TV-10 120VAC	30A 250VAC 1.5HP 240VAC TV-8 120VAC
Coil voltage		5/6/9/12/18/24	5/6/9/12/18/24	5/6/9/12/15/18/24/48/110
Coil power (w)		0.9	0.9	0.9
Contact resistance		≤100mΩ	≤100mΩ	≤100mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ
Endurance (times)	Mechanics	1×10^7	1×10^7	1×10^7
	Electrical	1×10^5	1×10^5	1×10^5
Dielectric Strength	Open contact	1000VAC	1000VAC	1500VAC
	Coil contact	4500VAC	4500VAC	2500VAC/4000VAC
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~105℃
Wiring diagram (bottom view)				
Outline dimension (mm)				
Installation form		Printed format, Quick connect type	Printed format, Quick connect type	Printed format
Unit weight		22g	22g	24g
Safety certification				

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		SLA-G	SLI-K	SLC-K
Exterior dimensions, Length * Width * Height(mm)		31.8×27.4×19.8	32.2×27×19.3	32.2×27.5×27.9
Contact form		1a,1c	1a,1b,1c	1a,1b,1c
Contact switching current		40A	30A	30A
Contact rating		40A 250VAC 1.5HP 240VAC TV-8 120VAC	30A 250VAC 1.5HP 240VAC TV-8 120VAC	30A 250VAC 1.5HP 240VAC TV-8 120VAC
Coil voltage		5/6/9/12/15/18/24/48/110	5/6/9/12/15/18/24/48/110	5/6/9/12/15/18/24/48/110
Coil power (w)		0.9	0.9	0.9
Contact resistance		≤100mΩ	≤100mΩ	≤100mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ
Endurance (times)	Mechanics	1×10^7	1×10^7	1×10^7
	Electrical	3×10^4	1×10^5	1×10^5
Dielectric Strength	Open contact	1500VAC	1500VAC	1500VAC
	Coil contact	2500VAC/4000VAC	2500VAC/4000VAC	2500VAC/4000VAC
Ambient temperature		-40℃~70℃	-40℃~85℃	-40℃~85℃
Wiring diagram (bottom view)				
Outline dimension (mm)				
Installation form		Printed format	Printed format, Quick connect type	Printed format, Quick connect type
Unit weight		24g	28g	31g
Safety certification		cULus CQC	cULus CQC TÜV	cULus CQC TÜV

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		SFD	SLG	SRDA
Exterior dimensions, Length * Width * Height(mm)		50×32.2×24	31.8×27.4×19.8	19.6×15.4×15.5
Contact form		1a	1a,1c	1a,1c
Contact switching current		30A	40A	15A
Contact rating		30A 250VAC 3HP 240VAC 2HP 125VAC TV-15 120VAC	40A 250VAC	10A 250VAC
Coil voltage		5/6/9/12/18/24/48/60	5/6/9/12/15/18/24/48/110	3/5/6/9/12/15/18/24/48/60
Coil power (w)		1.2	0.9	0.36
Contact resistance		≤100mΩ	≤100mΩ	≤100mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ
Endurance (times)	Mechanics	1×10^7	1×10^7	1×10^7
	Electrical	1×10^5	3×10^4	5×10^4
Dielectric Strength	Open contact	1200VAC	1500VAC	750VAC
	Coil contact	4000VAC	2500VAC 4000VAC	2500VAC
Ambient temperature		-40℃~85℃	-40℃~75℃	-40℃~85℃
Wiring diagram (bottom view)				
Outline dimension (mm)				
Installation form		Quick Connect Type， Flange	Printed format	PCB
Unit weight		55g	23.5g	
Safety certification		cULus CQC CE	cULus CQC TÜV	cULus CQC TÜV

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Relay Technical Information

The definition of relay and its importance

A relay is a component that produces a predetermined transition in one or more outputs when the input amount reaches a specified condition. For an electromagnetic relay, it can be simply understood that a predetermined electrical signal is applied to the input, and an output of the control circuit is turned on and off. The relay generally has an induction mechanism (input part) that can reflect certain input variables (such as current, voltage, power, impedance, frequency, temperature, pressure, speed, light, etc.); there is an actuator (output part) capable of implementing on/off control of the controlled circuit;between the input part and the output part of the relay, there is also a functional processing of the input quantity, there is an intermediate mechanism driving part that couples the input and output parts and drives the output part. As a control element, in summary, the relay has the following effects:

a) Enlarge the control range. If the multi-contact relay control signal reaches a certain value, the multi-circuit circuit can be opened and closed at the same time according to different forms of the contact group;

b) Amplification, sensitive relays, intermediate relays, etc., can control large power circuits with a very small amount of control;

c) integrated signal, when multiple control signals are input to a multi-winding relay in a prescribed form,after comparison, the predetermined control effect can be achieved;

d) Automatic, remote control, monitoring, the relay on the automatic unittogether with other electrical ppliances can form a program control circuit for automated operation.

Classification of Relay

A. Classified by application principle or construction

Table 1

No.	Designation		Definition
Electromagnetic Relay			Electromagnetic suction produced bye on trolling the current through the coil drives the movable part of the magnetic circuit to realize con tact open, close or conversion function.
1	Electromagnetic Relay	DC Electromagnetic Relay	Electromagnetic relay which control current is direct current, according to the size of con tact load, it cn be divided into micro-power; weak power, medium power, high power for four kinds.
2	Electromagnetic Relay	AC Electromagnetic Relay	Electromagnetic relay which control current is alter mating current, having two kinds of frequency 50Hz and 400Hz.
3	Electromagnetic Relay	Magnetic Latching Relay	Using a permanent magnet or parts with high remanence properties to make armature remain the original position after coil not energizing.
4	Solid state Relay		Solid state relay can perform a function of making and breaking circuit just like electromagnetic relay does. The function of the closed circuit, and The insulation levels of input and output circuits are weigh against with electromagnetic relay.
5	Hybrid electrome chanica Relay		A relay combined by electronic components and electromagnetic relay. Generally, its input part consists of electrical circuits, having effects of amplification and rectification, and its output part consists of electromagnetic relay.
6	High-Frequency Relay		A relay used for switching AC circuit which frequency is more than 10 KHZ .
7	Coaxial Relay		A relay with minimal loss and coaxial cable, used for switching high frequency and rf circuit.
8	Vacuum Relay		A relay which part of contacts in a high vacuum sealed container, used to quickly break, make or changeover a circuit of high voltage, high frequency, radio frequency.
Thermal Relay			A relay using the thermal effect to operate.
9	Thermal Relay	Temperature Relay	A relay operated when ambient temperature reaches required value.
10	Thermal Relay	Electric-heat Relay	Making electric energy into heat energy in control circuit, and then relay operates when energy reaches to a required value .
11	Photoelectric Relay		Relay operation through photoelectric effect.
12	Polarized Relay		Relay operation by means of magnetic field effect which produced by Polarization of the magnetic field and controlled current through controlling coil. Action direction of relay depends on the controlled current directi on of the coil.
13	Time Relay		When add or remove the input signal, output part needs to delay or limit time until it reaches the specified time to make or breakthe accused electrical lines.
14	Reed Relay		A relay sealed in a tube, employing double actions of reed to open, close or changeover electrical lines.

B. Classified by contact ratings

Table 2

Designation	Definition
Micro power relay	When the open circuit voltage of contacts is 28VDC, rated con tact current is less 0.2A(RES)
Weak power relay	When the open circuit voltage of contacts is 28VDC, rated contact current is O.2-1A(RES)
Medium power relay	When the ope n circuit voltage of contacts is 28VDC, rated con tact current is 2-10A(RES)
High-power relay	When the open circuit voltage of contacts is28VDCf rated con tact current is more than l0A(RES).

Note:in this table,there is only one kind of voltage value,Other load determined by product technical conditions according to the corresponding conversion relation.

C. Classified by relay outlines and dimensions

Table 3

Designation	Definition
Microminiature relay	The longest edge outline dimensions is not more than 10 mm.
Miniature relay	The longest edge outline dimensions is more than 10 mm but less than 25mm.
Small relays	The longest edge outline dimensions is more than 25 mm but less than50mm.

Note: For sealed or enclosed relays, the dimension is the maximum of the three vertical directions of the relay body, excluding the dimensions of installation, lead-out end, rib pressing, blank pressing, flanging and sealing solder joints.

D. Classified by protective construction

Table 4

Designation	Definition
Sealed type	Terminals, case, and base are filled with sealingresin.
Dust cover type	Most basic construction where the case and base (or body) are fitted together.
Open Type	Without the protective case.

E. Classified by contact form

Table 5

Designation	Definition
Normal open	Relay only with normally ope n contacts
Normal close	Relay only with normally close contacts
Changeover	Relay with changeover contacts (having function of normal ope n and normal close)

F. Classified by product purpose

Table 6

Designation	Definition
Communication relay	The relays used in communication equipment have high technical requirements, such as reliability, contact resistance, etc. and low environmental requirements, because the contact load range of these relays ranges from low level to medium current.
Machine tool relay	The relay used in machine tools has high contact load power and long service life.
Home appliance relay	Relays used in household appliances require good safety performance.
Automotive relay	Relays used in automobiles have high power of contact switching load, good shock resistance and vibration performance.
High voltage DC relay	Relays used in new energy vehicles usually have DC contacts, large current, shock resistance and good vibration performance.

Relay Technical Information

This document describes some basic information about electromagnetic relays and lists some electromagnetic relay selection principles and precautions for use.Unless otherwise stated, the parameters listed in the general product specifications of Sanyou are the initial values measured under standard conditions.

Standard states:
1. Temperature:15°C~35°C
2. Relative humidity:25%~75%
3. Barometric pressure:86KPa~106KPa

Unless other specified, drawings provided by Sanyou general adopt the first quadrant projection method.

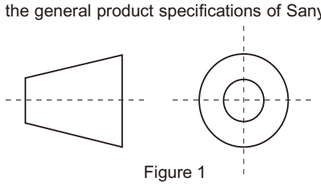


Figure 1

Basic terminology of Relay

1. CONTACTS

1.1 contact type: matching type of relay contacts. A set of matching type is gave in Table 7, multiple sets and so forth.

Table 7

Form	Symbol	Code		
		China	Sanyou	Others
Normal open (make) contact SPST-NO		H	M	A (or NO)
Normal close (break) contact SPST-NC		D	B	B (or NC)
Changeover contacts SPDT		Z	Blank	C (or CO)

1.2 Contact Resistance: This value is the combined resistance of the resistance when the contacts are touching each other, the Resistance of the terminals and contact spring. Unless other specified, we measured by "6VDC 0.1A" when con tact rating is less 1A, otherwise we measured by "6VDC 1AH for rating more than 1A.

1.3 Contact voltage-drop: General in rated circuit, total voltage drop is between contacts and contact spring and the terminals which indicated by voltage drop in certain current, eg50mV (at 10A).

1.4 Contact Material: in chemistry way; eg. AgNi means alloy contact of sliver and Nickel. Material and feature and applicable environment please see item 1.2 "contact material*1 of Part 2 “option principle”

1.5 Con tact nominal switching capacity: generally on certain conditions, the design value in volt amperes (VA) can safely be switched by contacts, unless other specified, all ratings are ressistive.

1.6 Max. switching Voltage: The maximum ope n circuit voltage which can safely be switched by the contacts. During using don' t be over the value, otherwise the endurance of relay would may reduce.

1.7 Max. switching Current: The maximum current which can safely be switched by the contacts. During using don' t be over the value, otherwise the en dura nee of relay would may reduce.

1.8 Max. switching Power: The maximum rating which can safely be switched by the contacts. During the process of using, don, t be over the value, otherwise the endurance of relaywould may reduce.

1.9 Mechanical Life: The minimum number of times the relay can be operated under nominal conditions (coil voltage,temperature,humidity etc.) With no load on the contacts.

1.10 Electrical Life: The minimum number of times the relay can be operated under nominal conditions with a specific load being switched by the contacts.

1.11 Surge Current: The ability of the device to withstand Max. instantaneous current of some specified ratings.

1.12 Min. Applicable load: the Min. Design value of ratings which can safely be switched by contacts will differ according to different frequency, conditions,contact resistance.

2. Performance Parameter

2.1 Insulation Resistance: After applied specified voltage quantity to discrete live parts, it present the quality of impedance marked with "MΩ".generally, the voltage is 500VDC (or 250VDC)

2.2 Dielectric Strength: Applied specified voltage quantity to discrete live parts for a period time, the leak current is less than a specified value. Usually the states is in VAC(RMS), unless other specified, the leak current is less than 1mA.

2.3 Operate Time (Pull-In or Pick-Up Time) : The elapsed time from the initial application of power to the coil, until the closure of the normally open contacts. (With multiple pole devices the time until the last contact closes.) This time does not in elude any bounce time.see figure 2 2.4 Release Time (Drop-Out Time): The elapsed time from the initial removal of coil power until the reclosure of the normally closed contacts (last con tact with multipole) this time does not in elude bounce.

2.4 Reset Time: Term used to describe release time of a latching relay.With a 2-coil magnetic latching relay the time is from the first application of power to the reset coil until the re closure of the reset contacts. With a single coil latching relay; the time is measured from the first application of reverse coil voltage until the reclosure of the reset con tact.

2.5 Contact Bounce (Time): Generally expressed in time (ms), this refers to the intermittent switching phenomenon of the contacts which occurs due to the collision between the movable metal parts or contacts, when the relay is operated or released.

2.6 Maximum Switching Frequency: This refers to the maximum switching frequency which satisfies the mechanical life or electrical life under repeated operations by applying a pulse train at the rated voltage to the operating coil.

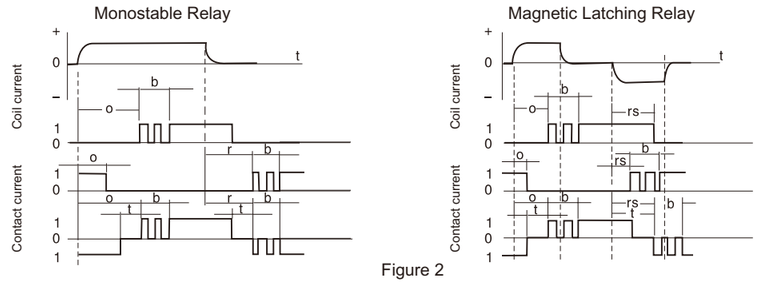


Figure 2

o:operate time; r:release time; t:changeover time; b:bounce time; rs: reset time; 0:contact off; 1:contact on

2.7 Ambient Temperature: ambient temperature which relay can normal work gen era l indicates by temperature range.

2.8 Coil Heating: specified voltage apply to coil and rated load apply to contacts under the applicable Max. ambient temperature, after temp, stable, the "K" stands for max. rising temp, of coil heat.

A.Shock Resistance, Destructive The acceleration which can be withstood by the relay during shipping or installation without it suffering damage, and without causing a change in its operating characteristics. Usually expressed in"G"s.

B.Shock Resistance, Functional The acceleration which can be tolerated by the relay during service without causing the closed contacts to open for more than the specified time, (usually 10ps)2.11.1 Vibration Resistance, Destructive : The vibration which can be withstood by the relay during shipping< installation or use without it suffering damage, and without causing a change in its operating characteristics. Expressed as an acceleration in G's or displacement, and frequency range.

Vibration Resistance, Functional:The vib ratio n which can be tolerated by the relay during service, without causing the closed contacts to ope n for more than the specified time.

Humidity: the requirement of humidity that relay can work normally, generally marked with "R.H%" indicated relative humidity;

Terminal Type: The terminal type of relay displays applicable field. Terminal type with PCB,THT,SMT QC etc.

Weight: the weight value of relay.

Packaging form: point to protective type with ope n type, dust cover type, flux-resistant type, sealed type, metallic hermetic seal type. See 3.2 clause "protective construction"

3.COIL

Nominal Operating Power: The value of power used by the coil at nominal voltage. For DC coils expressed in watts; AC expressed as volt amperes. Nominal Power (W or VA) = Nominal Voltage x Nominal Current.

Nominal Coil Voltage (Rated Coil Voltage): A single value (or narrow range) of source voltage intended by design to be applied to the coil or input Pick-Up Voltage (Pull-In Voltage or Must Operate Voltage) As the voltage on an unoperated relay is in creased, the value at or below which all contacts must function (transfer).

Drop-Out Voltage (Release or Must Release Voltage) :As the voltage on an operated relay is decreased, the value at or above which all contacts must revert to their unoperated position.

Coil Resistance : This is the DC resistance of the coil in DC type relays for the temperature conditions listed in the catalog. (Note that for certain types of relays, the DC resistance may be for temperatures other than the standard 20 °C68 F° .)

Maximum Continuous Voltage :The maximum voltage that can be applied continuously to the coil without causing damage.

Short duration Nominal Operating Current The value of current flow in the coil when nominal voltage is impressed on the coil.

4.Safety approval

4.1 UL Certification: UL is the abbreviation of Underwriter's Laboratories Inc. It is a non-profit organization established in 1894. Electronic products certified by the agency are freely available for sale in the US market, and electronic products without such certification are subject to restrictions when sold in most US states. Due to the authority of UL, products that have obtained UL certification are recognized by many countries.

4.2 UL&CUL: It is certified to both US and Canadian standards and is common in North America.

4.3 VDE certification: VDE is the abbreviation of VerbandDeutscherElektrotechniker. It is one of the authoritative organizations in Germany for electrical equipment and its components. The electrical products certified by this institution will be recognized by German law.

4.4 TUV certification: TUV is the abbreviation of a non-profit organization (Technischer Ueberwachungsverein) established by the German boiler manufacturer alliance. It has the same authority as VDE and is one of the authoritative organizations in Germany for electrical equipment. The electrical products certified by the institution will be recognized by German law.

4.5 CQC Certification: CQC is the abbreviation of China Quality Certification and is the most authoritative certification body in China. Products not included in the 3C certification catalogue can be CQC certified by the China Quality Certification Center.

5.Ordering Information

The orderingmark is a mark used to determine the type and specification of the relay, including some of the most basic details of the relay, such as: product type, wire voltage, contact form, package method, contact material, etc. Please refer to Section 3 “Ordering Information” for the ordering mark of Sanyou Relay.

6.Outline dimensions, wiring diagram, PCB Board Layout

Unless otherwise stated, the outline drawings provided by Sanyou generally use the first quadrant projection mode (Fig. 1), the wiring diagram is the bottom view circuit diagram, and the mounting hole size diagram is the PCB board size diagram.

6.1 Outline drawing: A diagram showing the external dimensions of the relay, showing the installation space required for therelay.

6.2 Wiring diagram: It shows the wiring mode of the relay input and output terminals corresponding to the terminals of the relay.

6.3 PCB Mounting Hole Size: Shows the position of each terminal of the relay and the size of its mounting hole.

6.4 Figure column: The figure of comm only used components see table 8.

Table 8

Coil	Poalrizedcoil	Contacts	Resistance	Conpaci-tance	Diode	Zener diode	Light-emitting diode	Pressuresensitive diodes
or								

7.Characteristic Curves

Maximum Switching Capacity :This is listed in the data column for each type of relay as the maximum value of the contact capacity and is an interrelationship of the maximum switchingpower,maximum switching voltage, and maximum switching current. The switching current and switching voltage can be obtained from this graph. For example, if the switching voltage is fixed in a certain application, the maximum switching current can be obtained from the intersection between the voltage on the axis and the maximum switching power.Mechanical Life:The minimum number of times the relay can be operated under nominal conditions (coil voltage, temperature, humidity, etc.) With no load on the contacts.

Electrical Life : The minimum number of times the relay can be operated under nominal conditions with a specific load being switched by the contacts.

8.Monostable magnetic latching, polarized relay

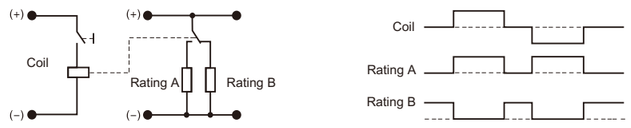
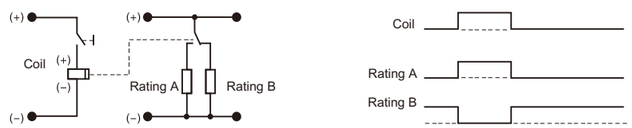
8.1 Monostable relay: When oil is energized, contact operates, after removing coil excitation, contact restorable.

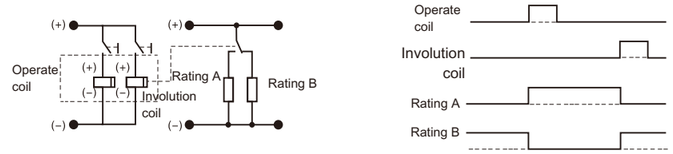
8.2 Magnetic latching relay: When coil is energized, contacts operate, after removing coil excitation, contacts still maintain the original state. We need to give single coil type applying reverse excitation, or return to stimulate reset coil of double coil type.

8.3 Polarized relay: The conversion of contacts state depends on the coil voltage polarity of the coil excitation. Part of the monostable relays and all magnetic latching relays belong to polarized relays.

Table 9 has displayed basic circuits and action waveform of several kinds of relays.

Table 9

Type	Basic circuit and waveform
Non-polarized monostable	
Polarized monostable	

Single coilmagne ticlatching	
Dual coilmagne ticlatching	

Relay selection principle

In order to properly select the relay, it is necessary to understand the characteristics of the relay and confirm whether these characteristics meet the requirements of use. It is more reliable if it can be confirmed in the actual use environment. The selection principle of the relay is shown in Table 10. After the item with the "√" number in the "Must be determined" column in the table is determined, a relay can be selected. If there are further requirements, further consideration should be given to the corresponding item with the “√” in the "Reference" column.

Table 10

item		indicator	must	alternative	influencing factor
Contact	Ratings	AC, DC, load type (RES, conductive)?	√		• Ambient temperature. • To AC ratings, whether actions are consistent with the load. • Whether contacts material are matched with the load.
	Contact form	NO, NC, CO? Poles number?	√		
	Electrical endurance	Frequency, operated cycles?	√		
	Contact material	Material?		√	
	Contact resistance	Value, test conditions?		√	
Coil	Rated voltage	Value, direction, AC, DC?	√		• Ambient temperature • Power fluctuation • Voltage drop when using a semi conductor drive
	Coil resistance	Value, in put power consumption?	√		
	Operate voltage	Value, power supply fluctuation?		√	
	Release voltage	Value, power supply fluctuation?		√	
	Max.allowable voltage	Value, time?		√	
	Coil heating	Value, insulation system?		√	
Performance	Protective con structi on	Open, flux proofed, sealed?	√		• Environmental situations • Safety requirements
	Electric strength	Value, position?	√		
	Insulation resistance	Value, position?		√	
	Vibration resistance	Value, stability or strength?		√	
	Shock resistance	Value, stability or strength?		√	
Operating environment	Ambient temperature	Value, time?	√		• Protective construction • Endurance • Insulation system
	Environment	Humidity .harmful gas?		√	
Outline and installation	Shape	Value, time?	√		• Mounting requirement • Mounting type
	Terminal type	PCB.QC.THT?	√		
	Soldering	Manual welding, wave-soldering, cleaning?		√	
	Spacing	Space, cling?		√	
Others	Safety approval	UL、VDE、TUV、CQC UL, VDE,CQC,TUV。		√	• Region • Client requirement
	Special requirement	Clients requirements?		√	

Further information.

1. Contacts

1.1 Type of Load and Inrush Current: The type of load and its inrush current characteristics, together with the switching frequency, are important factors which cause contact welding. Particularly for loads with inrush currents, measure the steady state and inrush current. Then select a relay which provides an ample margin of safety. The table below shows the relationship between typical loads and their inrush.

Table 11

Type of load	In rush current
Resistive load	Steady state current
Motor load	5 to 10 times the steady state current
Capacitive load	20 to 40 times the steady state current
Transformer load	5 to 15 times the steady state current
Solenoid load	10 to 20 times the steady state current
Incandescent lamp	10 to 15 times the steady state current
Mercury lamp load	Approx. 3 times the steady state current
Sodium vapor lamp load	1 to 3 times the steady state current

Figure 3 shows a representative load versus impulse current versus time. In addition, depending on the polarity of the relay, the polarity of the static and static contacts will also affect the electrical durability. Please confirm in actual use or consult a Sanyou technician.

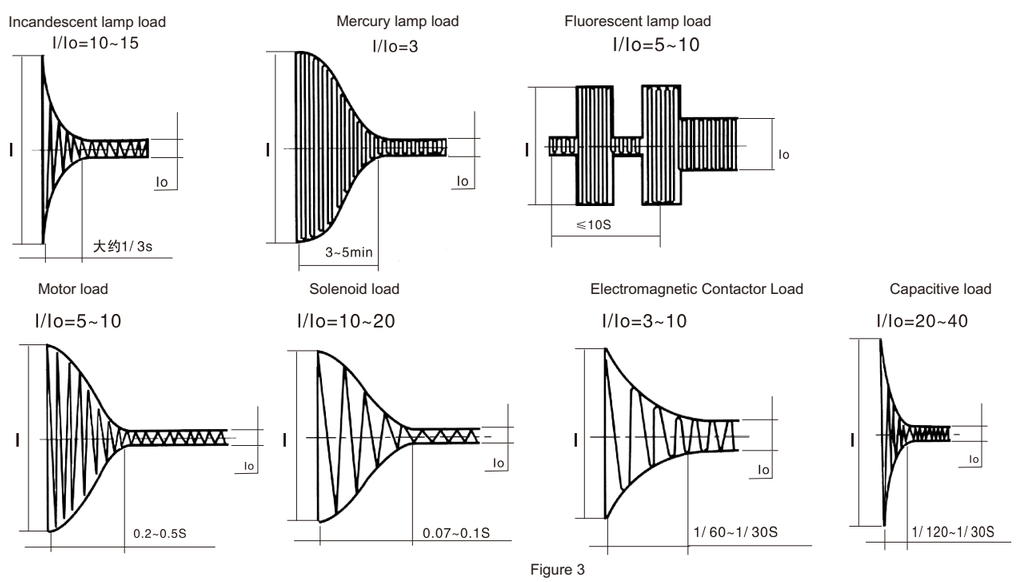


Figure 3

Contacts material: for same type relay, The load applicable to the different contact material type is slightly different. Please see

Table 12

Material	Property	Typical application
Plated gold	• Good corrosive resistance • In small loads, it has less contact resistance and better consistency compared with other material. • Good electrical conductivity and thermal conductivity	• •Small load, almost has no corrosivity, from 10mW (5V, 2mA) to 1.5W (24V, 62.5mA) (RES.load) • •medium load, several actions latter coating eroded away, AgNi plays a major role, from 2.4W (24V, 100mA) to 60W (30V,2A)(RES. load) Note: When break circuit at low load, typical value 1 mW (0.1V-1 mA). (eg. In the testing instrument). It is recommended to use two parallel contacts.
AgPd	• Good corrosive resistance and good resistance to sulfide at normal temperature • Less contact resistance and better • Consistency	• Small load, almost has no corrosivity, from 10mW (5, f2mA) to 1.5W(24V, 62.5mA) (RES.load) • medium load, several actions latter coating eroded away, AgNi plays a major role, from 2.4W (24V, 100mA) to 60W (30V,2A) (RES. load) Note: When break circuit at low load, typical value 1 mW (0.1V-1 mA). (eg. In the testing instrument). It is recommended to use two parallel contacts.
AgNi	• Good electrical conductivity and thermal conductivity • High erosion resistance • Medium resistance to welding • Easy to generate carbon membrane in sulfide environ ment	• Resistance load and little small general use load (inductive load) • Generally rated current is less than 12 A • Generally in rush current is less than 25A
AgCdO	• High AC loads • Good electrical conductivity and thermal conductivity • High erosion resistance • Good resistance to adhesive • Easy to generate carbon membrane in sulfide environ ment	• Resistance load, motor load and general use load (inductive load). • Generally rated current is less than 30 A • Generally in rush current is less than 50A
$AgSnO_2$	• Excellent resistance to adhesive piece • Material transfers less than other materials above in DC loads • Easy to generate carbon membrane in sulfide environ ment	• Lamp load, general use load (inductive load) and capacitive load. • A very large in rush current load.
$AgSnO_2$	• Excellent resistance to adhesive piece • Material transfers less than other materials above in DC loads • Easy to generate carbon membrane in sulfide environ ment	• Lamp load, general use load (inductive load) and capacitive load. • A very large in rush current load. • Different oxide,different loads.

Notes:

(1) Every kind of relays must be took account of the max. current value specified in specification.

(2) Generally when conditions permit, it had better do tests to make confirmed when actually used.

(3) Contacts plated gold have good performance for medium and small load, but to large load, it is only used for maintaining the initial contact performance before using.

1.3 Electrical endurance: unless other specified, nominal values of electrical endurance in specification are measured in rated load, certain temperature, certain duty factor etc. So other different loads and duty factors lead to different endurance.

For current more than 2A, electrical endurance of flux and dust cover type is longer than sealed type's for the same kind relays. So we can use flux and dust cover type relay to improve endurance. Special note: relay endurance, unless other specified, generally refers to the resistance load and air vent in dust holding an open state for heat exchange.

2. Coil

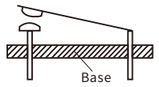
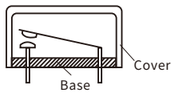
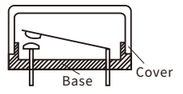
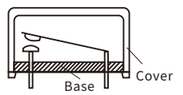
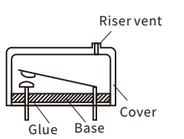
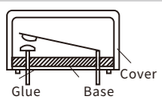
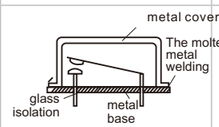
2.1 Voltage: In order to make the relay reliable work, we must ensure that the work circuit can provide rated voltage to relay coil. Sometimes in order to shorten the action time of relay, max. allowable voltage should be applied to coil in a short time. At the same time relays would not be overheat, even damage. For polarized relay, please confirm the polarity of the coil voltage.

2.2 Coil resistance: In order to make the relay reliable work, we must ensure that the work circuit can supply rated coil power to relay coil, so we should select appropriate resistance.

3. Construction and characteristic

3.1 Protective construction: in order to make sure the reliability of relay, different protective construction have different requiremen to relay processing. Please see table 13

Table 13

Sealing form	graphic	protection type	feature	automatic welding	automatic washing	anti-dus	liquid resistant	poisonous gas resistant
OpenType		RTO	without protection cover	×	×	×	×	×
Dust Cover Type		RTI	Most basic construction wheretho caso and base (or body) are fltede together.	×	×	√	△	×
Flux Resistant Type		RTII	Terminals are sealed ormol ded simultaneously.The joint between the caseand base Is highor than thesurface of the PC board.	√	×	√	△	×
								
			There is glue between base, leading-out terminal andcover to stick themtogether. There is a airvent far away from PCB board and solder wouldnot enter the inside of relay.	√	×	△	△	×
Sealed Type		RTIII	glue sealing between the base, terminal and cover. Internal structure is sealing with cover and base. Washable.	√	√	√	△ √	√
Metalic Hermetic Seal Type		RTIV or RTV	glue sealing between the base, terminal and cover. Internal structure is sealing with cover and base. Washable.	√	√	√	√	√

Note:

(1)"√": Yes; "x": No; "△": Pay attention;

(2) Because of certain permeability of plastic, please use sealed type relay in the environment of harmful gas and in the situation of explosion-proof.

3.2 Dielectric strength and insulation resistance: Please confirm the two parameters can meet the using requirements and won't cause a breakdown of the circuit, short circuit, etc.

3.3 Vibration and shock resistance: Please confirm the two parameters can meet the using requirements and won't cause a failure during using process.

4. Operated environment

4.1 Ambient temperature: Usually when the environment temperature does not exceed the range which instruction specified, relays all can work normally. When actually used in ambient temperature more than specified max value, you should contact with SANYOU for technical support. We would determine whether the relay can normally use according to the loads.

4.2 Atmosphere : In the cases of larger humidity, even condensation, and more dust, it is recommended to use sealed type relay. Because the large humidity is easy to accelerate corrosion of relay structure parts and dust can easy to make relay failure.

Under the environment of containing organic silicon, it is recommended to use sealed type relay. Because containing organic silicon would make relay accelerate failure. When there are H2S, SO2, NO2 gases, we can't use dust cover type and flux-resistance type. We can use sealed type and it had better do tests to make confirmed when actually used.

In the process of actual use, if the atmosphere is good , it is recommend to use dust cover type and flux-resistance type relay, because they have better endurance than sealed type.

5.Appearance and package

5.1 Appearance and mounting space: generally appearance dimensions of relays all have certain tolerance. So when design a circuit, it is recommended accord to the instructions specified in the maximum design size.

5.2 Welding type: recommended temperature and time :240°C~260°C, 2s~5s. If reflow soldering is needed, please confirm whether this kind of relay can perform reflow, if there are something unknown please contact SANYOU without hesitate.

6. Commercial factors

6.1 Manufacturers choice : Relay as the key part of the automatic control components, its characteristic is: high safety, long endurance, large dosage. In order to ensure the quality of relay and stable bulk supply ability, it is advised to choose a relay industry of main stream brand manufacturers.

6.2 Price choice: Relay industry is the traditional manufacturing industry and now becomes low-margin industry. Relay in the sales price, a great weight is for the cost of raw materials and the quality of relay largely depends on the quality of raw materials. It is advised to choose a good cost performance products and manufacturers, avoid to make sales price for the first condition.

7. Others

7.1 Safety approval: Generally UL&CUL certification is applicable to North America, VDE and TUV certification are applicable to Europe, CQC certification is applicable to China. Due to the international authority of these certifications, most of the other countries also approve these certifications. if there are something unknown please contact SANYOU without hesitate.

7.2 Special requirements: Relays in addition to the regular pattern, we also undertake some customers requirement for the specified products, if necessary, please consult SANYOU without hesitate for technical service.

Ordering information

The order mark includes the basic information of the relay. Table 14 shows the typical order mark of Sanyou. For the order mark of the specific model, please refer to the specification of each model.

Table 14

Nomenclature

SJ	-S	-1	12	D	M	2	-F	-XX	
									Special Parameter: Nil-Standard type, Letter or number -Special requirement
									Insulation class: Nil-Standard, B-Class B, F-Class F
									Contact material: Nil-AgSnO2, 2-AgNi
									Contact form: M-Form A
									Coil power: L-0.2W, D-0.45W
									Rated coil voltage (VDC): 03,05,06,09,12,18,24 (VDC)
									Number of poles: 1-1Pole
									Protective construction: S-Flux proofed,SH-Sealed type washable
									Basic series: SJ

General power relay

Failure phenomenon	Failure modes	Failure reason
Relay is not operate	No voltage input coil	• Disconnection happened to power supply circuit • Wrong wiring circuit or short circuit condition • Bad welding between leading-out terminals
	Low voltage input coil	• Low voltage to supply power • The power line is too long • High voltage specification for the selected relay
	Coil impassibility	• Bad soldering • Coil wire break
	Relay failure	• Fall to the ground or withstand strong shock • Contact fault
	Polarity of coil voltage for Polarized relay is not correc	• State change when under strong shock • Wrong wiring circuit • The influence of other energy storage element
Relay is not release	The residual voltage of coil terminals is too high	• Leakage current in the coil • The residual voltage for semiconductor is too high
	Relay failure	• Fall to the ground or withstand strong shock • Contact fault • The power supply ripple is too big
Relay is not stable operate	Instability of power supply	• Under voltage • The error of coil resistance
	Instability of relay parameters	• Fall to the ground or withstand strong shock • Short circuit between coil turn to turn
	Relay misoperation	• Whether the controlled procedure is wrong • Strong vibration in using environment
NO or NC contact welded	The current is too high	• The load is too large • The surge current is too large
	Contact abnormal shake	• External vibration is larger. • AC relay is not stable when operating，there is a hum • Relay action is not stable.
	Relay is operate in high frequency	
	The ambient temperature is too high, the cycles number is over its specified endurance	
NO contact not closed or NC contact not closed	Contact resistance is too large	• Bad welding • There is foreign body between contacts • Bad using conditions, make contact oxidation or sulfide
	Contact terminals without a current	• Load circuit break • Wrong wiring circuit or short circuit conditions • Bad welding between leading-out terminals
	The operations have exceed its specified endurance	

Note: In the event of a relay failure, if the remains unclear after preliminary analysis, please contact Sanyouto start the analysis together.

Conclusion:

As a key component of automatic control - the application of relays is becoming more and more popular and more and more important. Meanwhile, there are many manufacturers of relays, a wide variety of relays, various customer industries, and new products that are constantly being eveloped.Faced with complex and complex modern relay products, how to choose and use them correctly is a crucial issue that directly affects the performance of the end product and reliable operation on site. It is also a practical problem that the endproduct development, designers and manufacturing personnel pay attention to.In order to effectively communicate the manufacturer's and customers' consensus on relays and help customers to correctly and rationally use relay products, the technical department of Sanyouhas compiled the above guidelines based on customer feedback information and reference to relevant technical materials. We hope to provide our customers with reference to the selection of relays. For the related issues which are not mentioned in the guide, please consult with Sanyou at any time if necessary.

Signal relay

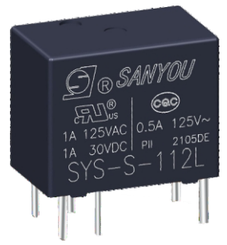
三友继电器 SANYOU RELAYS

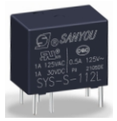
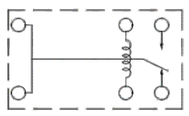
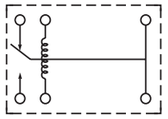
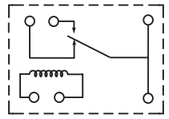
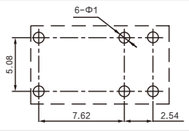
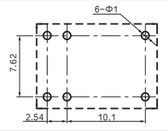
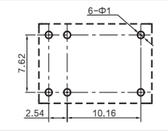
Feature

- Contact switching current: 1A~3A
- Contact rating: 120VAC/ 250VAC
- Coil power: 0.15W~0.36W;
- Certifications:CQC / UL

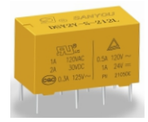
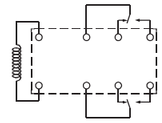
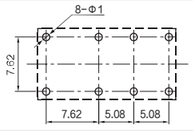
Applications:

- Appliances
- Office equipments
- Audios
- Telecom
- Computer ancillary equipment
- Safety alarm system
- Medical equipment



					
Type		SYS	SYS1	SYS1K	
Exterior dimensions, Length * Width * Height(mm)		12.3×7.4×10.1	15.5×10.5×11.5	15.4×10.4×11.4	
Contact form		1c	1c	1a,1c	
Contact switching current		1A	3A	3A	
Contact rating		1A 125VAC 1A 30VDC	3A 120VAC 3A 24VDC 1A 120VAC	3A 120VAC 3A 24VDC 1A 120VAC	
Coil voltage		5/6/9/12/24	5/6/9/12/24	5/6/9/12/24	
Coil power (w)		0.15/0.2	0.2/0.36/0.45	0.2/0.36/0.45	
Contact resistance		≤100mΩ	≤100mΩ	≤100mΩ	
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ	
Endurance (times)	Mechanics	1×10^7	1×10^7	1×10^7	
	Electrical	1×10^5	1×10^5	1×10^5	
Dielectric Strength	Open contact	500VAC	500VAC	500VAC	
	Coil contact	1000VAC	750VAC	750VAC	
Ambient temperature		-30℃~55℃	-40℃~70℃	-40℃~70℃	
Wiring diagram (bottom view)					
Outline dimension (mm)					
Installation form		Printed format	Printed format	Printed format	
Unit weight		2.1g	3.7g	3.7g	
Safety certification		cULus CQC	cULus CQC	cULus CQC	

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

			
Type		DSY2Y	
Exterior dimensions, Length * Width * Height(mm)		20.0×10.0×11.6	
Contact form		2c	
Contact switching current		2A	
Contact rating		1A 120VAC 1A 125VAC 2A 30VDC	
Coil voltage		5/6/9/12/15/18/24/48	
Coil power (w)		0.15/0.2/0.36/0.58	
Contact resistance		≤100mΩ	
Insulation resistance		≥1000MΩ	
Endurance (times)	Mechanics	1×10^7	
	Electrical	1×10^5	
Dielectric Strength	Open contact	750VAC	
	Coil contact	1000VAC	
Ambient temperature		-40℃~85℃	
Wiring diagram (bottom view)			
Outline dimension (mm)			
Installation form		Printed format	
Unit weight		4.6g	
Safety certification		cULus CQC TÜV	

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Magnetic latching relay

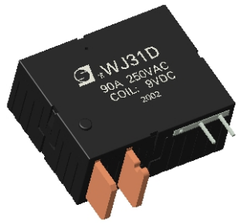
三友继电器 SANYOU RELAYS

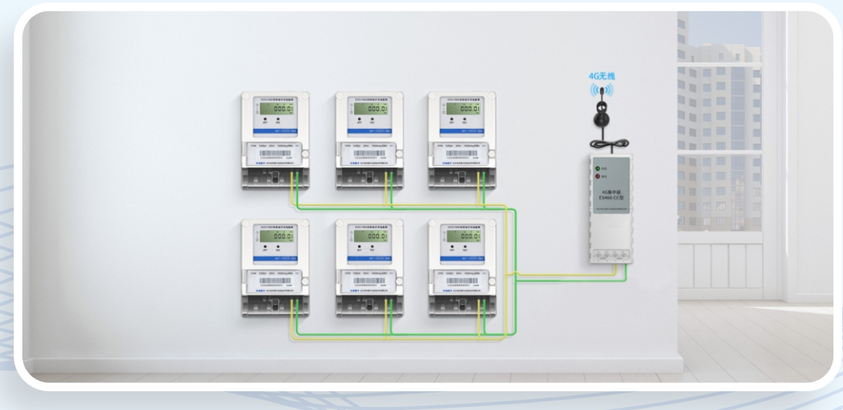
Feature

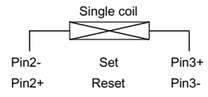
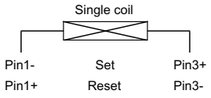
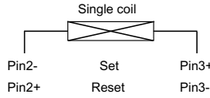
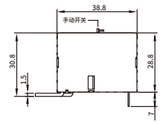
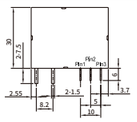
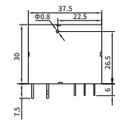
- Contact switching current: 5A~200A
- Contact rating: 120VAC / 250VAC / 277VAC
- Coil power: 0.15W~24W;
- Certifications:CQC / UL / VDE / TUV

Applications:

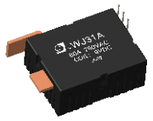
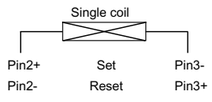
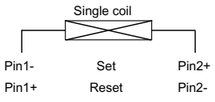
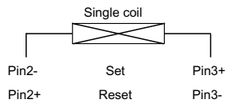
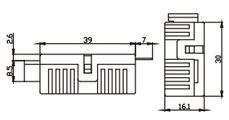
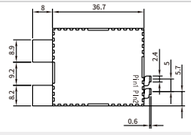
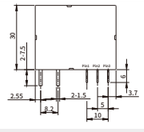
- Smart meter
- Electric remote control
- Power distribution
- Electrical equipment
- Smart home
- Telecommunication base station
- Charging pile, photovaltaic



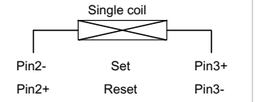
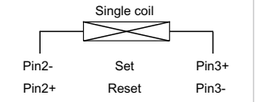
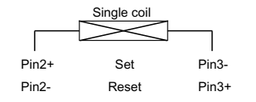
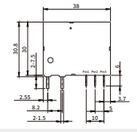
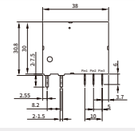
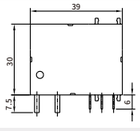


				
Type		WJ31N	WJ31H	WJ31J
Exterior dimensions, Length * Width * Height(mm)		38.8×28.8×15	38×30×16.5	37.5×30×16.5
Contact form		1a,1b	1a,1b	1a,1b
Contact switching current		40A	60A	60A
Contact rating		40A 250VAC	60A 250VAC	60A 250VAC
Coil voltage		5/9/12/24/48	5/9/12/24/48	5/9/12/24/48
Coil power (w)		Single coil: 1 Dual coil: 2	Single coil: 1.5 Dual coil: 3	Single coil: 1.5 Dual coil: 3
Contact resistance		≤2mΩ	≤1mΩ	≤2mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ
Endurance (times)	Mechanics	1×10^5	1×10^5	1×10^5
	Electrical	1×10^4	1×10^4	1×10^4
Dielectric Strength	Open contact	1500VAC	2000VAC	1500VAC
	Coil contact	4000VAC	4000VAC	4000VAC
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~85℃
Wiring diagram (bottom view)				
Outline dimension(mm)				
Installation form		Customization Type Connection Type	Customization Type Connection Type	Customization Type Connection Type
Weight				31g
Safety certification				TUV UC2

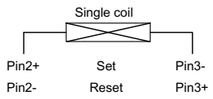
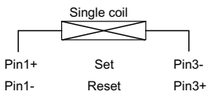
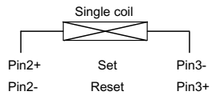
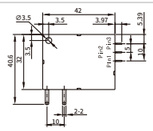
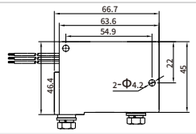
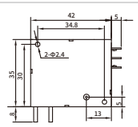
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		WJ31A	WJ31F	WJ31D
Exterior dimensions, Length * Width * Height(mm)		39×30×16.1	36.7×30.9×16.9	38×30×16.5
Contact form		1a,1b	1a,1b	1a,1b
Contact switching current		80A	80A	90A
Contact rating		80A 250VAC	80A 250VAC	90A 250VAC
Coil voltage		5/9/12/24/48	5/9/12/24/48	5/9/12/24/48
Coil power (w)		Single coil: 1.5 Dual coil: 3	Single coil: 1.5 Dual coil: 3	Single coil: 1.5 Dual coil: 3
Contact resistance		≤1mΩ	≤1mΩ	≤1mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ
Endurance (times)	Mechanics	1×10^5	1×10^5	1×10^5
	Electrical	1×10^4	1×10^4	1×10^4
Dielectric Strength	Open contact	1500VAC	1500VAC	2000VAC
	Coil contact	4000VAC	4000VAC	4000VAC
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~85℃
Wiring diagram (bottom view)				
Outline dimension(mm)				
Installation form		Customization Type Connection Type	Customization Type Connection Type	Customization Type Connection Type
Weight				31g
Safety certification		TÜV		TÜV UC2

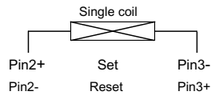
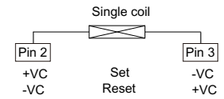
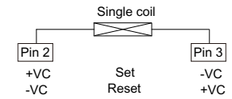
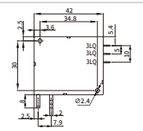
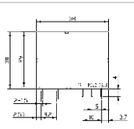
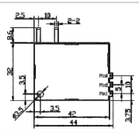
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		WJ31P	WJ31S	WJ31W
Exterior dimensions, Length * Width * Height(mm)		38×30×16.5	38×30×16.5	39×30×18.5
Contact form		1a,1b	1a,1b	1a,1b
Contact switching current		90A	90A	100A
Contact rating		90A 250VAC	90A 250VAC	100A 250VAC
Coil voltage		5/9/12/24/48	5/9/12/24/48	5/9/12/24/48
Coil power (w)		Single coil: 1.5 Dual coil: 3	Single coil: 1.5 Dual coil: 3	Single coil: 1.5 Dual coil: 3
Contact resistance		≤1mΩ	≤1mΩ	≤1mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ
Endurance (times)	Mechanics	1×10^5	1×10^5	1×10^5
	Electrical	1×10^4	1×10^4	1×10^4
Dielectric Strength	Open contact	3000VAC	3000VAC	2000VAC
	Coil contact	4000VAC	4000VAC	4000VAC
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~85℃
Wiring diagram (bottom view)				
Outline dimension(mm)				
Installation form		Customization Type Connection Type	Customization Type Connection Type	Customization Type Connection Type
Weight				
Safety certification				TÜV UC2

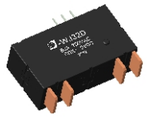
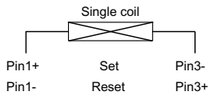
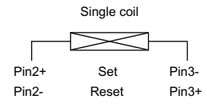
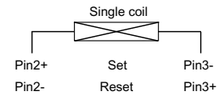
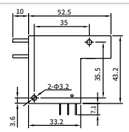
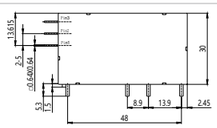
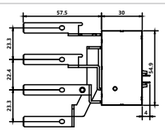
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		WJ31K	WJ302	WJ31X
Exterior dimensions, Length * Width * Height(mm)		42×32×20.8	66.7×46.4×24	42×35×21.5
Contact form		1a,1b	1a,1b	1a,1b
Contact switching current		100A	100A	100A
Contact rating		100A 250VAC	100A 250VAC	120A 250VAC
Coil voltage		5/9/12/24/48	5/9/12/24/48	5/9/12/24/48
Coil power (w)		Single coil: 3 Dual coil: 6	Single coil: 3 Dual coil: 6	Single coil: 3 Dual coil: 6
Contact resistance		≤1mΩ	≤2mΩ	≤1mΩ
Insulation resistance		≥1000MΩ(DC500V)	≥1000MΩ	≥1000MΩ
Endurance (times)	Mechanics	1×10^5	1×10^5	1×10^5
	Electrical	1×10^4	1×10^4	1×10^4
Dielectric Strength	Open contact	2000VAC	1000VAC	2000VAC
	Coil contact	4000VAC	4000VAC	4000VAC
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~85℃
Wiring diagram (bottom view)				
Outline dimension(mm)				
Installation form		Customization Type Connection Type	Customization Type Connection Type	Customization Type Connection Type
Weight				
Safety certification		TÜV UC3		TÜV UC3

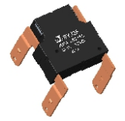
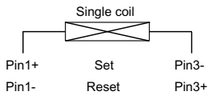
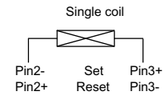
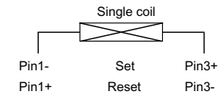
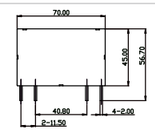
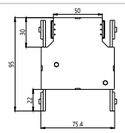
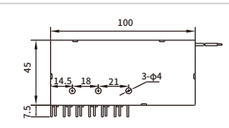
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		WJ31T	SY31P-D	SY31K-D
Exterior dimensions, Length * Width * Height(mm)		42×35×21.5	38×30×18.5	42×32×20.8
Contact form		1a,1b	1a,1b	1a,1b
Contact switching current		120A	63A	100A
Contact rating		120A 60VAC	63A 60VAC	100A 60VAC
Coil voltage		5/9/12/24/48	5/9/12/24/48	5/9/12/24/48
Coil power (w)		Single coil: 2 Dual coil: 4	Single coil: 5 Dual coil: 10	Single coil: 5 Dual coil: 10
Contact resistance		≤1mΩ	≤1mΩ	≤1mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ(DC500V)	≥1000MΩ(DC500V)
Endurance (times)	Mechanics	1×10^5	1×10^5	1×10^5
	Electrical	3×10^3(120A) 5×10^3(100A) 5×10^4(80A)	6×10^3	6×10^3
Dielectric Strength	Open contact	2000VAC	2000VAC	2000VAC
	Coil contact	4000VAC	4000VAC	4000VAC
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~85℃
Wiring diagram (bottom view)				
Outline dimension(mm)				
Installation form		Customization Type Connection Type	Customization Type Connection Type	Customization Type Connection Type
Weight				
Safety certification				

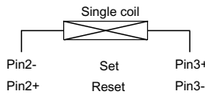
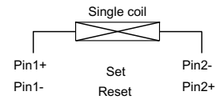
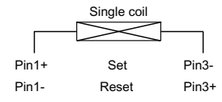
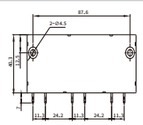
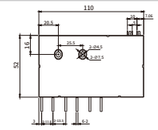
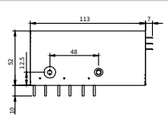
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		WJ31G	SY32J	WJ32D
Exterior dimensions, Length * Width * Height(mm)		52.5×43.2×22	55.8×30.6×18.1	54.9×30×18
Contact form		1a,1b	2a,2b	2a,2b
Contact switching current		100A	60A,80A	80A
Contact rating		100A 250VAC 120A 250VAC	60A 250VAC 80A 250VAC	60A 277VAC 80A 277VAC
Coil voltage		5/9/12/24/48	5/9/12/24/48	5/9/12/24/48
Coil power (w)		Single coil: 2.4 Dual coil: 4.8	Single coil: 3 Dual coil: 6	Single coil: 3 Dual coil: 6
Contact resistance		≤1mΩ	≤1mΩ	≤1mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ(DC500V)	≥1000MΩ
Endurance (times)	Mechanics	1×10^5	1×10^5	1×10^5
	Electrical	1×10^4	1×10^4	1×10^4
Dielectric Strength	Open contact	2000VAC	2000VAC	2000VAC
	Coil contact	4000VAC	4000VAC	4000VAC
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~85℃
Wiring diagram (bottom view)				
Outline dimension(mm)				
Installation form		Customization Type Connection Type	Customization Type Connection Type	Connection Type
Weight				
Safety certification		TÜV UC3		TÜV UC2

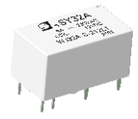
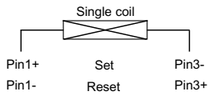
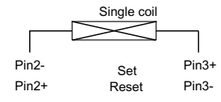
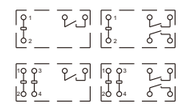
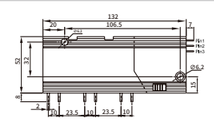
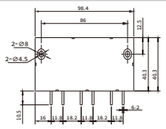
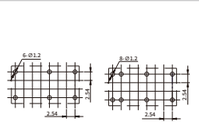
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		WJ32K	SY32F	WJ33L
Exterior dimensions, Length * Width * Height(mm)		70×45×22	74.8×73×29.5	100×45×21
Contact form		2a,2b	2a,2b	3a,3b
Contact switching current		120A	200A	80A
Contact rating		120A 250VAC	200A 240VAC	80A 250VAC
Coil voltage		5/9/12/24/48	9/12/24	5/9/12/24/48
Coil power (w)		Single coil: 5 Dual coil: 10	Single coil: 12 Dual coil: 24	Single coil: 3 Dual coil: 6
Contact resistance		≤1mΩ	≤1mΩ	≤1mΩ
Insulation resistance		≥1000MΩ(DC500V)	≥1000MΩ(DC500V)	≥1000MΩ
Endurance (times)	Mechanics	1×10^5	1×10^5	1×10^5
	Electrical	1×10^4	6×10^3	1×10^4
Dielectric Strength	Open contact	2000VAC	2000VAC	2000VAC
	Coil contact	4000VAC	4000VAC	4000VAC
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~85℃
Wiring diagram (bottom view)				
Outline dimension(mm)				
Installation form		Customization Type Connection Type	Customization Type Connection Type	Customization Type Connection Type
Weight				
Safety certification				

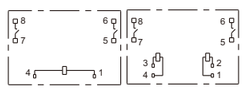
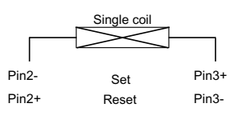
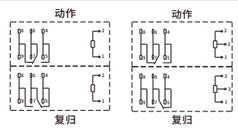
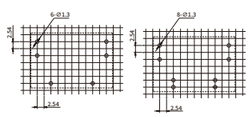
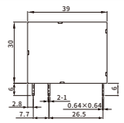
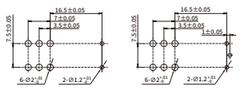
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Type		WJ33F	WJ33D	WJ33E
				
Exterior dimensions, Length * Width * Height(mm)		98.4×40.3×34.8	110×52×24	113×52×28
Contact form		3a,3b	3a,3b	3a,3b
Contact switching current		90A	120A	120A
Contact rating		90A 250VAC	120A 250VAC	120A 250VAC
Coil voltage		5/9/12/24/48	5/9/12/24/48	5/9/12/24/48
Coil power (w)		Single coil: 2 Dual coil: 4	Single coil: 5 Dual coil: 10	Single coil: 5 Dual coil: 10
Contact resistance		≤1mΩ	≤1mΩ	≤1mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ
Endurance (times)	Mechanics	1×10^5	1×10^5	1×10^5
	Electrical	1×10^4	1×10^4	1×10^4
Dielectric Strength	Open contact	2000VAC	2000VAC	2000VAC
	Coil contact	4000VAC	4000VAC	4000VAC
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~85℃
Wiring diagram (bottom view)				
Outline dimension(mm)				
Installation form		Customization Type Connection Type	Customization Type Connection Type	Customization Type Connection Type
Weight				
Safety certification		TÜV UC2	TÜV UC3	

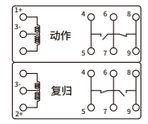
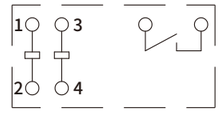
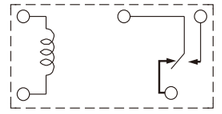
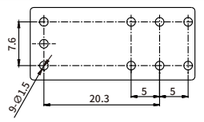
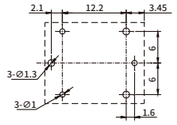
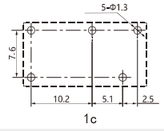
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Type		WJ33G	WJ33K	SY32A
				
Exterior dimensions, Length * Width * Height(mm)		132×52×30	98.4×40.3×37.8	20.2×11.1×10.5
Contact form		3a,3b	3a,3b	1a, 1b
Contact switching current		120A	120A	8A
Contact rating		120A 250VAC	120A 250VAC	1P: 8A 250VAC 2P: 5A 250VAC
Coil voltage		5/9/12/24/48	5/9/12/24/48	5/6/9/12/24
Coil power (w)		Single coil: 5 Dual coil: 10	Single coil: 5 Dual coil: 10	Single coil: 0.15 Dual coil: 0.3
Contact resistance		≤1mΩ	≤1mΩ	≤100mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ (DC500V)
Endurance (times)	Mechanics	1×10^5	1×10^5	1×10^7
	Electrical	1×10^4	1×10^4	8A 5×10^4 5A 1×10^5
Dielectric Strength	Open contact	2000VAC	2000VAC	1000VAC
	Coil contact	4000VAC	4000VAC	2000VAC
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~85℃
Wiring diagram (bottom view)				
Outline dimension(mm)				
Installation form		Connection Type	Customization Type Connection Type	Printed format
Weight				
Safety certification		TÜV UC3	TÜV UC3	

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		WJ32C	WJ31V	WJ32M
Exterior dimensions, Length * Width * Height(mm)		30×20×10.2	39×30×16.5	29.1×25.45×12.8
Contact form		2a,2b,1a+1b	1a,1b	1a,1b,1c
Contact switching current		16A	60A	16A
Contact rating		16A 250VAC	60A 250VAC	1P: 16A 250VAC 2P: 5A 250VAC
Coil voltage		5/9/12/24/48	5/9/12/24/48	5/9/12/24/48
Coil power (w)		Single coil: 1 Dual coil: 2	Single coil: 1.5 Dual coil: 3	Single coil: 1 Dual coil: 2
Contact resistance		≤20mΩ	≤2mΩ	≤50mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ
Endurance (times)	Mechanics	1×10^6	1×10^5	1×10^5
	Electrical	5×10^4	1×10^6	1×10^4
Dielectric Strength	Open contact	1000VAC	2000VAC	750VAC
	Coil contact	4000VAC	4000VAC	2000VAC
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~85℃
Wiring diagram (bottom view)				
Outline dimension(mm)				
Installation form		Printed format	Customization Type Connection Type	Printed format
Weight				
Safety certification				

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		SM-K	SRDK	WJ106
Exterior dimensions, Length * Width * Height(mm)		29×13×16	19×15.4×16.45	20.6×10.2×15.7
Contact form		1a,1b,1c	1a,1c	1a,1b,1c
Contact switching current		20A	15A	5A
Contact rating		20A 277VAC 16A 250VAC	15A 120VAC 10A 250VAC TV-10 120VAC 1/6HP 120VAC	5A 277VAC
Coil voltage		5/6/9/12/24	5/6/9/12/24/48	5/6/9/12/24/48
Coil power (w)		Single coil: 0.4 Dual coil: 0.6	Single coil: 0.4 Dual coil: 0.8	Single coil: 0.4 Dual coil: 0.2
Contact resistance		≤100mΩ	≤100mΩ	≤100mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ
Endurance (times)	Mechanics	1×10^5	1×10^7	1×10^7
	Electrical	1×10^4	15A 1×10^7 12A 1×10^4 10A 1×10^5	1×10^5
Dielectric Strength	Open contact	1000VAC	750VAC	1000VAC
	Coil contact	5000VAC	2000VAC	4000VAC
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~105℃
Wiring diagram (bottom view)				
Outline dimension(mm)				
Installation form		Printed format	Printed format	Printed format
Weight				
Safety certification				

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Special Instructions for Latching Relay

Latching relay is mainly applied to the smart electric energy meter to control the on/off of the main circuit of the household AC. It can also be applied to low-voltage electrical appliances, smart capacitors and other fields. This chapter introduces mainly the special instructions for latching relay. General attentions on relays can be found in the foreword section of this chapter.

1.Relay installation

1. 1 When latching relay adopt hard connection, please avoid stress force on load terminals during and after installation.

1.2 When latching relay adopt screw or bolt connection, please tighten the screws and bolts so as to avoid damage or other accidents caused by over heating or loosen arcing.

1. 3 When removing latching relay, please never pull sample line or coil lead line which may cause sample line or coil lead line broken or bad connection, because it will effect relay's reliability.

1.4 When latching relay adopt QC terminal, please never weld relay load terminals so as to avoid the welding heat effects latching relay's function. If welding on QC terminals is needed, please contact us to provide relevant information.

1.5 When latching relay is effected by force during transportation or installation, relay status may have changed. To check its function (On/Off), the relay coil must be energized with rated volatge s in needed status .

1.6 Latching relay is normally dust cover structure design, most product structures are customized. The suggestion for the storage of the product should be not over 6 months. It needs to be stored in a specific environment without strong magnetic field.

2 .Relay coil

2.1 The latching relay's coil polarity must follow the instruction of datasheet, otherwise it will cause no operation or unreliable operation.

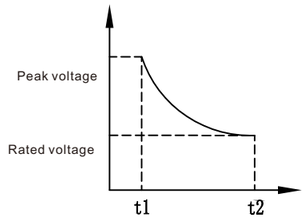
2.2 Please never continuously input power in latching relay coil. It should use pulse supply and input time should not over 1 minute.

2.3 Input rated voltage and recommended pulse width in latching relay coil to ensure latching relay reliable working.

2.4 The coil power supply should be higher than the rated power to ensure its reliable working.

2.5 Input 2 times rated coil voltage and recommended pulse width in latching relay coil will not affect its working reliability

2.6 When the capacitor is used to power the coil, the peak voltage applied to the coil is about 1.5 times to 2 times of the rated voltage, and the pulse width from the peak voltage to the rated voltage should be less than the operating time of the relay (See below photo).



t2-t1 > Operate time

Photo-voltaic relay

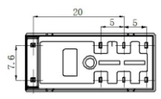
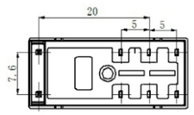
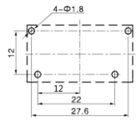
三友继电器 SANYOU RELAYS

Feature

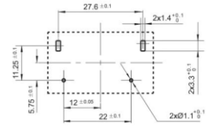
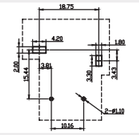
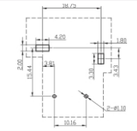
- Current sustained by coil, to decrease consumption of electricity
- Rated voltage up to 1000VAC, loading current 10A - 270A
- Contact gap meets IEC 62109, VDE0126

Applications:

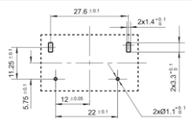
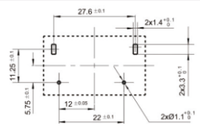
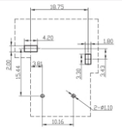
- Protection of the photovoltaic power generating system
- Input protection, output protection, power failure recovery, isolation control

				
Type		SMIA	SMIA-G	SMIC
Rated load current		10A	16A	35A
Contact form		2a,2c	2a,2c	1a
Contact resistance		≤100mΩ (@24VDC,1A)	≤100mΩ (@24VDC,1A)	≤100mΩ
Rated voltage		250VAC	250VAC	250VAC
Max. switching voltage		277VAC	277VAC	277VAC
Max. breaking current		10A	16A	35A
Mechanical Endurance		3×10^5	3×10^5	1×10^5
Electrical Endurance		3×10^4	3×10^4	3×10^4
Dielectric Strength	Open contact	2,500VAC	2,500VAC	2,500VAC
	Coil contact	5,000VAC	5,000VAC	4,500VAC
Coil voltage		5/6/9/12/24/48	5/6/9/12/24/48	5/6/9/12/18/24
Pick-up voltage		≤75%Un	≤75%Un	≤75%Un
Drop-out voltage		≥5%Un	≥5%Un	≥5%Un
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~85℃
Ambient humidity		5%~85%RH	5%~85%RH	5%~85%RH
Installation Hole Dimensions (Bottom view) (mm)				
Weight		19g	19g	20g
Exterior dimensions Length*Width*Height (mm)		29×12.8×26.2	29×12.8×26.2	30.1×15.7×23.3
Sealing form		Plastic seal type Waterproof type	Plastic seal type	Plastic seal type
Quantity packed in whole case		400/box	400/box	500/box
Safety certification				

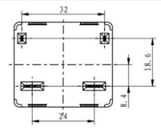
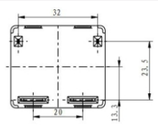
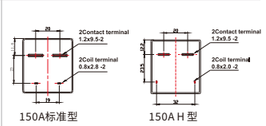
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		SMIC-G	SLE	SLE-U
Rated load current		45A	35A	45A
Contact form		1a	1a	1a
Contact resistance		≤100mΩ	≤100mΩ	≤100mΩ
Rated voltage		250VAC	277VAC	315VAC
Max. switching voltage		277VAC	277VAC	315VAC
Max. breaking current		45A	35A	45A
Mechanical Endurance		1×10^5	5×10^6	3×10^5
Electrical Endurance		5×10^4(20A-45A-20A@277VAC)	3×10^4	3×10^4(20A-45A-20A@315VAC)
Dielectric Strength	Open contact	2,500VAC	2,500VAC	2,500VAC
	Coil contact	4,500VAC	4,000VAC	4,000VAC
Coil voltage		5/6/9/12/18/24	12/24	5/6/9/12/24
Pick-up voltage		≤75%Un	≤75%Un	≤75%Un
Drop-out voltage		≥5%Un	≥5%Un	≥5%Un
Ambient temperature		-40℃~85℃	-40℃~65℃	-40℃~85℃
Ambient humidity		5%~85%RH	20%~85%RH	20%~85%RH
Installation Hole Dimensions (Bottom view) (mm)				
Weight		19.5g	30g	30g
Exterior dimensions Length*Width*Height (mm)		30.1×15.7×23.3	31.8×27.4×19.8	31.8×27.4×19.8
Sealing form		Plastic seal type	Plastic seal type Waterproof type	Plastic seal type Waterproof type
Quantity packed in whole case		500/box	400/box	400/box
Safety certification				

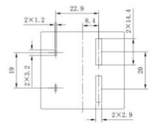
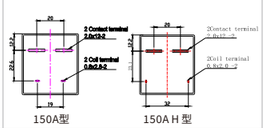
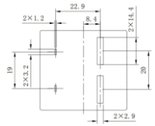
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Type		SMIC-T	SMIC-Z	SLE-T
				
Rated load current		50A	55A	60A
Contact form		1a	1a	1a
Contact resistance		≤100mΩ	≤100mΩ	≤100mΩ
Rated voltage		250VAC	250VAC	277VAC
Max. switching voltage		277VAC	277VAC	315VAC
Max. breaking current		50A	55A	60A
Mechanical Endurance		1×10^5	1×10^5	3×10^5
Electrical Endurance		5×10^4(20A-50A-20A@277VAC)	5×10^4(20A-55A-20A@277VAC)	3×10^4(15A-60A-15A@277VAC)
Dielectric Strength	Open contact	2,500VAC	2,500VAC	2,500VAC
	Coil contact	4,500VAC	4,500VAC	4,000VAC
Coil voltage		5/6/9/12/18/24	5/6/9/12/18/24	5/6/9/12/24
Pick-up voltage		≤75%Un	≤75%Un	≤75%Un
Drop-out voltage		≥5%Un	≥5%Un	≥5%Un
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~85℃
Ambient humidity		5%~85%RH	5%~85%RH	5%~85%RH
Installation Hole Dimensions (Bottom view) (mm)				
Weight		19.5g	20g	30g
Exterior dimensions Length*Width*Height (mm)		30.1×15.7×23.3	30.1×15.7×23.3	31.8×27.4×19.8
Sealing form		Plastic seal type	Plastic seal type	Plastic seal type Waterproof type
Quantity packed in whole case		500/box	500/box	400/box
Safety certification				

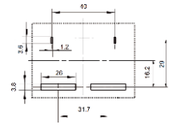
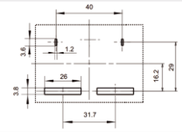
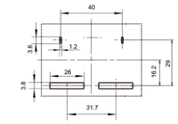
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Type		SPV75	SPV90	SPV100
				
Rated load current		75A	90A	100A
Contact form		1a	1a	1a
Contact resistance		≤10mΩ	≤10mΩ	≤50mv(@10A)
Rated voltage		1000VAC	1000VAC	690VAC
Max. switching voltage		1000VAC	1000VAC	690VAC
Max. breaking current		80A	100A	100A
Mechanical Endurance		1×10^6	1×10^6	1×10^6
Electrical Endurance		3×10^4 (30A-80A-30A@85℃) 6×10^3 (60A 320VAC)	3×10^4 (30A-100A-30A @1000VAC) 1×10^3 (90A 320VAC)	3×10^4 (30A-100A-30A @400VAC) 3×10^3 (100A@60VDC)
Dielectric Strength	Open contact	2,000VAC	2,000VAC	2,000VAC
	Coil contact	5,000VAC	5,000VAC	5,000VAC
Coil voltage		12/24	12/24	12/24
Pick-up voltage		≤75%Un	≤75%Un	≤75%Un
Drop-out voltage		≥5%Un	≥5%Un	≥5%Un
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~85℃
Ambient humidity		5%~85%RH	5%~85%RH	5%~85%RH
Installation Hole Dimensions (Bottom view) (mm)				
Weight		90g	90g	155g
Exterior dimensions Length*Width*Height (mm)		38×36.3×33	38×36.3×33	41.5×45×43
Sealing form		flux Resistant Type	flux Resistant Type	Plastic seal type Waterproof type
Quantity packed in whole case		80/box	80/box	100/box
Safety certification				

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

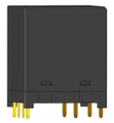
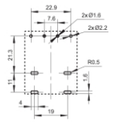
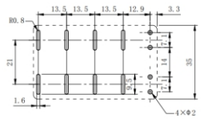
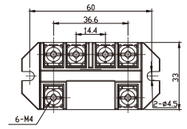
				
Type		SPV150B	SPV150	SPV200B
Rated load current		150A	150A	200A
Contact form		1a	1a	1a
Contact resistance		≤0.5mΩ (@6V 20A)	≤50mv (@10A)	≤0.5mΩ (@6V 20A)
Rated voltage		1000VAC	690VAC	1000VAC
Max. switching voltage		1000VAC	690VAC	1000VAC
Max. breaking current		150A	150A	200A
Mechanical Endurance		1×10^6	1×10^6	1×10^6
Electrical Endurance		3×10^4(50A-150A-50A@1000VAC)	3×10^4 (30A-150A-30A @400VAC) 3×10^3 (100A@60VDC)	3×10^4(50A-200A-50A@1000VAC)
Dielectric Strength	Open contact	2,000VAC	2,000VAC	2,000VAC
	Coil contact	5,000VAC	5,000VAC	5,000VAC
Coil voltage		12/24	12/24	12/24
Pick-up voltage		≤75%Un	≤75%Un	≤75%Un
Drop-out voltage		≥5%Un	≥5%Un	≥5%Un
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~85℃
Ambient humidity		5%~85%RH	5%~85%RH	5%~85%RH
Installation Hole Dimensions (Bottom view) (mm)				
Weight		220g	155g	220g
Exterior dimensions Length*Width*Height (mm)		45×41.4×50.5	41.5×45×43	45×41.4×50.5
Sealing form		Flux Resistant Type	Plastic seal type Waterproof type	flux Resistant Type
Quantity packed in whole case		75/box	100/box	75/box
Safety certification				

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		SPV200	SPV270	SPV270-G
Rated load current		200A	270A	270A
Contact form		1a	1a	1a
Contact resistance		≤1mΩ (@20A)	≤1mΩ (@20A)	≤1mΩ (@20A)
Rated voltage		1000VAC	1000VAC	1000VAC
Max. switching voltage		1000VAC	1000VAC	1000VAC
Max. breaking current		200A	270A	270A
Mechanical Endurance		1×10^6	1×10^6	1×10^6
Electrical Endurance		3×10^4 (55A-200A-55A@1000VAC) 100 (200A@1000VAC)	3×10^4 (55A-270A-55A @1000VAC) 100 (270A@1000VAC)	3×10^4 (55A-270A-55A @1000VAC) 100 (270A@1000VDC)
Dielectric Strength	Open contact	2,000VAC	2,000VAC	2,000VAC
	Coil contact	5,000VAC	5,000VAC	5,000VAC
Coil voltage		12/24	12/24	12/24
Pick-up voltage		≤75%Un	≤75%Un	≤75%Un
Drop-out voltage		≥5%Un	≥5%Un	≥5%Un
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~85℃
Ambient humidity		5%~85%RH	5%~85%RH	5%~85%RH
Installation Hole Dimensions (Bottom view) (mm)				
Weight		215g	215g	225g
Exterior dimensions Length*Width*Height (mm)		65×46×40	65×46×40	65×46×40
Sealing form		flux Resistant Type	flux Resistant Type	flux Resistant Type
Quantity packed in whole case		60/box	60/box	48/box
Safety certification				

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Photo-voltaic relay

				
Type		SPV40	SCP40	SET40
Rated load current		40A	40A	40A
Contact form		2a, With auxiliary contact	4a, With auxiliary contact	2a
Contact resistance		≤10mΩ (@6V 20A)	≤10mΩ (@20A)	≤100mΩ (@20A)
Rated voltage		480VAC	440VAC	250VAC
Max. switching voltage		480VAC	440VAC	277VAC
Max. breaking current		40A	40A	40A
Mechanical Endurance		1×10^6	1×10^5	1×10^6
Electrical Endurance		5×10^4 (10A-40A-10A @480VAC) 3×10^4 (35A@480VDC)	5×10^4 (10A-40A-10A @440VAC)	3×10^3
Dielectric Strength	Open contact	2,000VAC	2,000VAC	2,000VAC
	Coil contact	5,000VAC	5,000VAC	4,000VAC
Coil voltage		6/9/12/24/48	9/12/24/48	3/6/12/24/100/110/200 (VDC) 6/12/24/48/100/120/220/240 (VAC)
Pick-up voltage		≤75%Un	≤75%Un	≤80%Un
Drop-out voltage		≥5%Un	≥5%Un	≥10%Un
Ambient temperature		-40℃~85℃	-40℃~85℃	-40℃~85℃
Ambient humidity		5%~85%RH	5%~85%RH	5%~85%RH
Installation Hole Dimensions (Bottom view) (mm)				
Weight		65g	150g	130g
Exterior dimensions Length*Width*Height (mm)		36×30×40	59×35×47	68×33×51.4
Sealing form		flux Resistant Type	Plastic seal type Waterproof type	dust cover
Quantity packed in whole case		100/box	100/box	100/box
Safety certification				

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

High voltage DC relay

三友继电器 SANYOU RELAYS

Application Principle and features

- Ceramic seal vacuum chamber adopted to switch and protect the circuit when charging & discharging
- Non-polar contact without distinction of anode & cathode, as so to control the charging and discharging of the battery
- Patent structure applied, the relay withstand the shock current and avoid fire and explosion
- To extend the endurance with adhesion resistance, as well as to increase the reliability. With such design, the air-conditioner, indicator, brake, air pump and electrical machinery is on-off controlled

Type		SEF20	SEF40	SEF200
Rated load current		20A	40A	200A
Contact form		1a	1a	1a
Contact resistance		≤5mΩ (@1A)	≤5mΩ (@1A)	≤1mΩ (@6V 1A)
Rated voltage		450VDC	450VDC	450VDC
Max. switching voltage		450VDC	450VDC	450VDC
Max. breaking current (A)		30A (450VDC) 5Times	50A (450VDC) 5Times	400A
Mechanical Endurance		5×10^5	5×10^5	2×10^5
Electrical Endurance		Carry: 1×10^3 (750VDC,τ=1ms, shock 200A steady state 20A)	Carry: 1×10^3 (750VDC,τ=1ms, shock 200A steady state 40A)	Carry: 7.5×10^4 (10VDC,τ=1ms, shock 400A steady state 200A)
		Making: 3×10^3(20A,450VDC) Carry: 1×10^5(20A,450VDC)	Making: 3×10^3(40A,450VDC) Carry: 1×10^5(40A,450VDC)	Making: 1×10^3(200A,200VDC) Making: 500(200A,450VDC)
Dielectric Strength	Open contact	2500VAC	2500VAC, 1min, 1mA	3000VAC, 1min, 1mA
	Coil contact	2500VAC, 1min, 1mA	2500VAC, 1min, 1mA	4000VAC, 1min, 1mA
Coil voltage		12 / 24 / 48	12 / 24 / 48	12 / 24
Pick-up voltage (VDC)		≤7.2 / ≤14.4 / ≤28.8	≤7.2 / ≤14.4 / ≤28.8	≤9 / ≤18
Drop-out voltage (VDC)		≥1.2 / ≥2.4 / ≥4.8	≥1.2 / ≥2.4 / ≥4.8	≥1.0 / ≥2.0
Ambient temperature (℃)		-40℃~85℃	-40℃~85℃	-40℃~85℃
Ambient humidity (RH)		5%~85%RH	5%~85%RH	5%~85%RH
Weight		50g	50g	370g
Exterior dimensions Length*Width*Height (mm)		30.1×44×30	30.1×44×30	88×42.5×87.3
Sealing form		plastic seal type	plastic seal type	
Quantity packed in whole case		100/box	100/box	24/box

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Type		SEL100B		SEL100D		SEL150B	
Rated load current		100A		100A		150A	
Contact form		1a		1a		1a	
Contact resistance		≤0.5mΩ (@6V 20A)		≤0.5mΩ (@6V 20A)		≤0.5mΩ (@6V 20A)	
Rated voltage		800VDC		750VDC		800VDC	
Max. switching voltage		1000VDC		750VDC		1000VDC	
Max. breaking current (A)		1000A(800VDC，1cycle)		1000A (600VDC，1cycle)		1500A (450VDC，1cycle)	
Mechanical Endurance		2×10^5		2×10^5		2×10^5	
Electrical Endurance		500VDC Making: 1×10^3 (100A、500VDC) Carry: 7.5×10^4 (20VDC,τ=1ms shock 140A)	800VDC Making: 1×10^3 (100A、800VDC) Carry: 7.5×10^4 (20VDC,τ=1ms shock 140A)	450VDC Making: 2×10^3 (100A、450VDC) Carry: 7.5×10^4 (50VDC,τ=1ms shock 180A)	750VDC Making: 1×10^3 (100A、750VDC) Carry: 7.5×10^4 (50VDC,τ=1ms shock 180A)	500VDC Making: 1×10^3 (150A、500VDC) Carry: 7.5×10^4 (20VDC,τ=1ms shock 140A)	800VDC Making: 1×10^3 (150A、800VDC) Carry: 7.5×10^4 (20VDC,τ=1ms shock 140A)
Dielectric Strength	Open contact	3000VAC, 1min, 1mA		3000VAC, 1min, 1mA		3000VAC, 1min, 1mA	
	Coil contact	3000VAC, 1min, 1mA		4000VAC, 1min, 1mA		3000VAC, 1min, 1mA	
Coil voltage		12	24	12	24	12	24
Pick-up voltage (VDC)		≤9	≤18	≤9	≤18	≤9	≤18
Drop-out voltage (VDC)		≥1.0	≥2.0	≥1.0	≥2.0	≥1.0	≥2.0
Ambient temperature (℃)		-40℃~85℃		-40℃~85℃		-40℃~85℃	
Ambient humidity (RH)		5%~85%RH		5%~85%RH		5%~85%RH	
Weight		200g		260g		200g	
Exterior dimensions Length*Width*Height (mm)		69×34×60.8		74.7×36×66.6		69×34×60.8	
Sealing form		ceramic sealing		ceramic sealing		ceramic sealing	
Quantity packed in whole case		45/box		36/box		45/box	

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.



Type		SEL150D		SEL200B		SEL200D	
Rated load current		150A		200A		200A	
Contact form		1a		1a		1a	
Contact resistance		≤0.5mΩ (@6V 20A)		≤0.5mΩ (@6V 20A)		≤0.5mΩ (@6V 20A)	
Rated voltage		1000VDC		800VDC		1000VDC	
Max. switching voltage		1000VDC		1000VDC		1000VDC	
Max. breaking current (A)		1500A(600VDC，1cycle)		2000A (450VDC，1cycle)		1500A (600VD，1cycle)	
Mechanical Endurance		2×10^5		2×10^5		2×10^5	
Electrical Endurance		450VDC	750VDC	500VDC	800VDC	500VDC	750VDC
		Making: 2×10^3 (150A、450VDC)	Making: 1×10^3 (150A、750VDC)	Making: 500 (200A、500VDC)	Making: 200 (200A、800VDC)	Making: 800 (200A、500VDC)	Making: 100 (200A、750VDC)
		Carry: 7.5×10^4 (50VDC τ=1ms shock 180A)	Carry: 7.5×10^4 (50VDC τ=1ms shock 180A)	Carry: 7.5×10^4 (20VDC,τ=1ms shock 140A)	Carry: 7.5×10^4 (20VDC,τ=1ms shock 140A)	Carry: 7.5×10^4 (50VDC τ=1ms shock 180A)	Carry: 7.5×10^4 (50VDC τ=1ms shock 180A)
Dielectric Strength	Open contact	3000VAC, 1min, 1mA		3000VAC, 1min, 1mA		3000VAC, 1min, 1mA	
	Coil contact	4000VAC, 1min, 1mA		3000VAC, 1min, 1mA		4000VAC, 1min, 1mA	
Coil voltage		12	24	48	12	24	12	24
Pick-up voltage (VDC)		≤9	≤18	≤36	≤9	≤18	≤9	≤18
Drop-out voltage (VDC)		≥1.0	≥2.0	≥4.0	≥1.0	≥2.0	≥1.0	≥2.0
Ambient temperature (℃)		-40℃~85℃			-40℃~85℃		-40℃~85℃	
Ambient humidity (RH)		5%~85%RH			5%~85%RH		5%~85%RH	
Weight		300g			200g		300g	
Exterior dimensions Length*Width*Height (mm)		74.7×36×73.8			69×34×60.8		76×66.3×36	
Sealing form		ceramic sealing			ceramic sealing		ceramic sealing	
Quantity packed in whole case		36/box			45/box		36/box	

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.



Type		SEL200		SEL200F		SEL250F	
Rated load current		200A		200A		250A	
Contact form		1a		1 normally open contact, 1 normally close contact		1 normally open contact, 1 normally close contact	
Contact resistance		≤0.5mΩ (@6V 20A)		≤0.5mΩ (@6V 20A)		≤0.5mΩ (@6V 20A)	
Rated voltage		800VDC		800VDC		800VDC	
Max. switching voltage		1000VDC		1000VDC		1000VDC	
Max. breaking current (A)		2000A(800VDC，1cycle)		2000A(800VDC，1cycle)		2000A(800VDC，1cycle)	
Mechanical Endurance		2×10^5		2×10^5		2×10^5	
Electrical Endurance		500VDC	800VDC	500VDC	800VDC	500VDC	800VDC
		Making: 3×10^3 (200A、500VDC)	Making: 1×10^3 (200A、800VDC)	Making: 3×10^3 (200A、500VDC)	Making: 1×10^3 (200A、800VDC)	Making: 3×10^3 (250A、500VDC)	Making: 1×10^3 (250A、800VDC)
		Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	Carry: 7×10^4 (50VDC,τ=1ms shock 180A)
Dielectric Strength	Open contact	4000VAC, 1min, 1mA		4000VAC, 1min, 1mA		4000VAC, 1min, 1mA	
	Coil contact	4000VAC, 1min, 1mA		4000VAC, 1min, 1mA		4000VAC, 1min, 1mA	
Coil voltage		12	24	12	24	12	24
Pick-up voltage (VDC)		≤9	≤18	≤9	≤18	≤9	≤18
Drop-out voltage (VDC)		≥1.0	≥2.0	≥1.0	≥2.0	≥1.0	≥2.0
Ambient temperature (℃)		-40℃~85℃		-40℃~85℃		-40℃~85℃	
Ambient humidity (RH)		5%~85%RH		5%~85%RH		5%~85%RH	
Weight		325g		350g		350g	
Exterior dimensions Length*Width*Height (mm)		81×39×70		76×39×77.4		76×39×77.4	
Sealing form		ceramic sealing		ceramic sealing		ceramic sealing	
Quantity packed in whole case		45/box		45/box		45/box	

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

							
Type		SEL250B		SEL250		SEL250BS	
Rated load current		250A		250A		250A	
Contact form		1a		1a		1a	
Contact resistance		≤0.5mΩ (@6V 20A)		≤0.5mΩ (@6V 20A)		≤0.5mΩ (@6V 20A)	
Rated voltage		800VDC		800VDC		800VDC	
Max. switching voltage		1000VDC		1000VDC		1000VDC	
Max. breaking current (A)		2000A(800VDC，1cycle)		2000A (800VDC，1cycle)		2000A (800VDC，1cycle)	
Mechanical Endurance		2×10^5		2×10^5		2×10^5	
Electrical Endurance		500VDC Making: 3×10^3 (250A、500VDC) Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	800VDC Making: 1×10^3 (250A、800VDC) Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	500VDC Making: 3×10^3 (250A、500VDC) Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	800VDC Making: 1×10^3 (250A、800VDC) Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	500VDC Making: 3×10^3 Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	800VDC Making: 1×10^3 Carry: 7×10^4 (50VDC,τ=1ms shock 180A)
Dielectric Strength	Open contact	4000VAC, 1min, 1mA		4000VAC, 1min, 1mA		4000VAC, 1min, 1mA	
	Coil contact	4000VAC, 1min, 1mA		4000VAC, 1min, 1mA		4000VAC, 1min, 1mA	
Coil voltage		12	24	12	24	12	24
Pick-up voltage (VDC)		≤9	≤18	≤9	≤18	≤9	≤18
Drop-out voltage (VDC)		≥1.0	≥2.0	≥1.0	≥2.0	≥1.0	≥2.0
Ambient temperature (℃)		-40℃~85℃		-40℃~85℃		-40℃~85℃	
Ambient humidity (RH)		5%~85%RH		5%~85%RH		5%~85%RH	
Weight		325g		350g		650g	
Exterior dimensions Length*Width*Height (mm)		81×39×70		86.05×42.5×74.5		102×50×73	
Sealing form		ceramic sealing		ceramic sealing		ceramic sealing	
Quantity packed in whole case		45/box		36/box		24/box	

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

							
Type		SEL300B		SEL300		SEL400B	
Rated load current		300A		300A		400A	
Contact form		1a		1a		1a	
Contact resistance		≤0.5mΩ (@6V 20A)		≤0.5mΩ (@6V 20A)		≤0.5mΩ (@6V 20A)	
Rated voltage		800VDC		800VDC		800VDC	
Max. switching voltage		1000VDC		1000VDC		1000VDC	
Max. breaking current (A)		2000A(800VDC，1cycle)		2000A(800VDC，1cycle)		2000A (800VDC，1cycle)	
Mechanical Endurance		2×10^5		2×10^5		2×10^5	
Electrical Endurance		500VDC Making: 1×10^3 (300A、500VDC) Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	800VDC Making: 500 (300A、800VDC) Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	800VDC 300A Making: 1×10^3 Carry: 7×10^4 (50VDC,τ=1ms shock 180A)		800VDC 400A Making: 100次 Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	
Dielectric Strength	Open contact	4000VAC, 1min, 1mA		4000VAC, 1min, 1mA		4000VAC, 1min, 1mA	
	Coil contact	4000VAC, 1min, 1mA		4000VAC, 1min, 1mA		4000VAC, 1min, 1mA	
Coil voltage		12	24	12	24	12	24
Pick-up voltage (VDC)		≤9	≤18	≤9	≤18	≤9	≤18
Drop-out voltage (VDC)		≥1.0	≥2.0	≥1.0	≥2.0	≥1.0	≥2.0
Ambient temperature (℃)		-40℃~85℃		-40℃~85℃		-40℃~85℃	
Ambient humidity (RH)		5%~85%RH		5%~95%RH		5%~85%RH	
Weight		325g		350g		350g	
Exterior dimensions Length*Width*Height (mm)		81×39×70		86.05×42.5×74.5		86.05×42.5×74.5	
Sealing form		ceramic sealing		ceramic sealing		ceramic sealing	
Quantity packed in whole case		45/box		36/box		36/box	

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

						
Type		SEL400	SEC150		SEC150Y	
Rated load current		400A	150A		150A	
Contact form		1a	1 normally open contact, 1 normally open auxiliary contact		1 normally open contact, 1 normally open auxiliary contact	
Contact resistance		≤0.3mΩ (@400A)	≤1.5mΩ (@6V 20A)		≤0.5mΩ (@6V 20A)	
Rated voltage		1000VDC	750VDC		750VDC	
Max. switching voltage		1000VDC	1000VDC		1000VDC	
Max. breaking current (A)		2500A(450VDC，1cycle)	1500A (320VDC，1cycle)		1500A (450VDC，1cycle)	
Mechanical Endurance		2×10^5	2×10^5		2×10^5	
Electrical Endurance		Making: 1×10^3(500V 400A) Making: 200 (800V 400A) Making: 100 (1000V 400A) Carry: 7.5×10^4 (22.5VDC, shock 180A)	500VDC Making: 2×10^3 Carry: 7.5×10^4 (22.5VDC,τ=1ms shock 180A， steady state 150A)	750VDC Making: 1×10^3 Carry: 7.5×10^4 (37.5VDC,τ=1ms shock 180A， steady state 150A)	500VDC Making: 2×10^3 Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	750VDC Making: 1×10^3 Carry: 7×10^4 (50VDC,τ=1ms shock 180A)
Dielectric Strength	Open contact	4000VAC, 1min, 1mA	3000VAC, 1min, 1mA		3000VAC, 1min, 1mA	
	Coil contact	4000VAC, 1min, 1mA	4000VAC, 1min, 1mA		3000VAC, 1min, 1mA	
Coil voltage		12	12	24	12	
Pick-up voltage (VDC)		≤9	≤9	≤18	≤9	
Drop-out voltage (VDC)		≥1.0	≥1.0	≥2.0	≥1.0	
Ambient temperature (℃)		-40℃~85℃	-40℃~85℃		-40℃~85℃	
Ambient humidity (RH)		5%~85%RH	5%~85%RH		5%~85%RH	
Weight		700g	270g		406g	
Exterior dimensions Length*Width*Height (mm)		95.8×49.0×93	68×50.6×60.1		77.8×66.5×73.3	
Sealing form		ceramic sealing	ceramic sealing		ceramic sealing	
Quantity packed in whole case		18/box	30/box		30/box	

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

						
Type		SEC250	SEC300Y		SEC350	
Rated load current		250A	300A		350A	
Contact form		1 normally open contact, 1 normally open auxiliary contact	1 normally open contact, 1 normally open auxiliary contact		1 normally open contact, 1 normally open auxiliary contact	
Contact resistance		≤0.5mΩ (@6V 20A)	≤0.5mΩ (@6V 20A)		≤0.5mΩ (@6V 20A)	
Rated voltage		750VDC	750VDC		750VDC	
Max. switching voltage		1000VDC	1000VDC		1000VDC	
Max. breaking current (A)		2500A(450VDC，1cycle)	2500A(450VDC，1cycle)		3000A(450VDC，1cycle)	
Mechanical Endurance		2×10^5	2×10^5		2×10^5	
Electrical Endurance		500VDC Making: 1×10^3 (250A、500VDC) Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	750VDC Making: 500 (250A、800VDC) Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	500VDC Making: 1×10^3 (350A、500VDC) Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	750VDC Making: 500 (350A、750VDC) Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	500VDC Making: 1×10^3 (350A、500VDC) Carry: 7×10^4 (50VDC,τ=1ms shock 180A)	750VDC Making: 500 (350A、750VDC) Carry: 7×10^4 (50VDC,τ=1ms shock 180A)
Dielectric Strength	Open contact	3000VAC, 1min, 1mA	3000VAC, 1min, 1mA		3000VAC, 1min, 1mA	
	Coil contact	3000VAC, 1min, 1mA	3000VAC, 1min, 1mA		3000VAC, 1min, 1mA	
Coil voltage		12	12		12	
Pick-up voltage (VDC)		≤9	≤9		≤9	
Drop-out voltage (VDC)		≥1.0	≥1.0		≥1.0	
Ambient temperature (℃)		-40℃~85℃	-40℃~85℃		-40℃~85℃	
Ambient humidity (RH)		5%~85%RH	5%~85%RH		5%~85%RH	
Weight		440g	406g		440g	
Exterior dimensions Length*Width*Height (mm)		77.8×66.5×73.3	77.8×66.5×73.3		77.8×66.5×73.3	
Sealing form		ceramic sealing	ceramic sealing		ceramic sealing	
Quantity packed in whole case		30/box	30/box		30/box	

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

								
Type		SEV40		SES60		SES60B		
Rated load current		40A		60A		60A		
Contact form		1a		1a		1a		
Contact resistance		≤10mΩ (@6V 20A)		≤1mΩ (@6V 20A)		≤1mΩ (@6V 20A)		
Rated voltage		750VDC		750VDC		750VDC		
Max. switching voltage		1000VDC		1000VDC		1000VDC		
Max. breaking current (A)		400A(1000VDC，1cycle)		600A (500VDC，1cycle)		600A (450VDC，1cycle)		
Mechanical Endurance		2×10^5		2×10^5		2×10^5		
Electrical Endurance		500VDC Making: 6×10^3 (40A、500VDC)	750VDC Making: 3×10^3 (40A、750VDC)	500VDC Break: 100 (500VDC、200A) Carry: 7.5x10^4 (500VDC，60A)	750VDC Break: 50 (750VDC、200A) Carry: 7.5x10^4 (750VDC，60A)	500VDC Break: 100 (500VDC、200A) Carry: 7.5x10^4 (500VDC，60A)	750VDC Break: 50 (750VDC、200A) Carry: 7.5x10^4 (750VDC，60A)	
Dielectric Strength	Open contact	3000VAC, 1min, 1mA		3000VAC, 1min, 1mA		3000VAC, 1min, 1mA		
	Coil contact	4000VAC, 1min, 1mA		3000VAC, 1min, 1mA		3000VAC, 1min, 1mA		
Coil voltage		12	24	48	12	24	12	24
Pick-up voltage (VDC)		≤9	≤18	≤36	≤9	≤18	≤9	≤18
Drop-out voltage (VDC)		≥1.0	≥2.0	≥4.0	≥1.0	≥2.0	≥1.0	≥2.0
Ambient temperature (℃)		-40℃~85℃			-40℃~85℃		-40℃~85℃	
Ambient humidity (RH)		5%~85%RH			5%~85%RH		5%~85%RH	
Weight		155g			174g		156g	
Exterior dimensions Length*Width*Height (mm)		67×32.6×50.5			55×39.8×37		64×33×52.8	
Sealing form		ceramic sealing			ceramic sealing		ceramic sealing	
Quantity packed in whole case		54/box			54/box		54/box	

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

								
Type		SEP20		SEP40		SEP150		
Rated load current		20A		40A		150A		
Contact form		1a		1a		1 normally open contact, 1 normally open auxiliary contact		
Contact resistance		≤4.5mΩ (@6V 20A)		≤4.5mΩ (@6V 20A)		≤0.3mΩ (@150A)		
Rated voltage		1000VDC		1000VDC		1500VDC		
Max. switching voltage		1500VDC		1500VDC		1500VDC		
Max. breaking current (A)		200A(1000VDC，1cycle)		400A(1000VDC，1cycle)		1000A		
Mechanical Endurance		2×10^5		2×10^5		2×10^5		
Electrical Endurance		1000VDC Making: 6×10^3 (20A、1000VDC)	1500VDC Making: 6×10^3 (20A、1500VDC)	Carry: 1.5×10^4 (40A 1500VDC)		Break: 2000 (1500VDC、100A)	Break: 1000 (1500VDC、150A)	
Dielectric Strength	Open contact	4000VAC, 1min, 1mA		4000VAC, 1min, 1mA		4000VAC, 1min, 1mA		
	Coil contact	4000VAC, 1min, 1mA		4000VAC, 1min, 1mA		4000VAC, 1min, 1mA		
Coil voltage		12	24	12	24	12	24	
Pick-up voltage (VDC)		≤9.6	≤19.2	≤9.6	≤19.2	≤9	≤18	
Drop-out voltage (VDC)		≥1.0	≥2.0	≥1.0	≥2.0	≥1.2	≥2.4	
Ambient temperature (℃)		-40℃~85℃		-40℃~85℃		-40℃~85℃		
Ambient humidity (RH)		5%~85%RH		5%~85%RH		5%~85%RH		
Weight		150g		150g		1150g		
Exterior dimensions Length*Width*Height (mm)		78×39.8×46.1		78×39.8×46.1		104.0×70.0×107.9		
Sealing form		ceramic sealing		ceramic sealing		ceramic sealing		
Quantity packed in whole case		54/box		54/box		12/box		

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

High voltage DC relay

							
Type		SEP250		SEP350		SEP400	
Rated load current		250A		350A		400A	
Contact form		1 normally open contact, 1 normally open auxiliary contact		1 normally open contact, 1 normally open auxiliary contact		1 normally open contact, 1 normally open auxiliary contact	
Contact resistance		≤0.3mΩ (@250A)		≤0.3mΩ (@350A)		≤0.25mΩ (@400A)	
Rated voltage		1500VDC		1500VDC		1500VDC	
Max. switching voltage		1500VDC		1500VDC		1500VDC	
Max. breaking current (A)		2000A		2000A		2000A	
Mechanical Endurance		2×10^5		2×10^5		2×10^5	
Electrical Endurance		Break: 3000 (1500VDC、100A)	Break: 1000 (1000VDC、250A)	Break: 5000 (1500VDC、100A)	Break: 3000 (1500VDC、150A)	Break: 5000次 (1500VDC、100A)	Break: 3000 (150VDC、150A)
		Break: 50 (1500VDC、250A)		Break: 1000 (1000VDC、350A)	Break: 50 (1500VDC、350A)	Break: 1000 (1000VDC、400A)	Break: 50 (1500VDC、400A)
Dielectric Strength	Open contact	4000VAC, 1min, 1mA		4000VAC, 1min, 1mA		4000VAC, 1min, 1mA	
	Coil contact	4000VAC, 1min, 1mA		4000VAC, 1min, 1mA		4000VAC, 1min, 1mA	
Coil voltage		12	24	12	24	12	24
Pick-up voltage (VDC)		≤9	≤18	≤9	≤18	≤9	≤18
Drop-out voltage (VDC)		≥1.2	≥2.4	≥1.2	≥2.4	≥1.2	≥2.4
Ambient temperature (℃)		-40℃~85℃		-40℃~85℃		-40℃~85℃	
Ambient humidity (RH)		5%~85%RH		5%~85%RH		5%~85%RH	
Weight		1150g		1150g		1150g	
Exterior dimensions Length*Width*Height (mm)		104.0×70.0×107.9		104.0×70.0×107.9		104.0×70.0×107.9	
Sealing form		ceramic sealing		ceramic sealing		ceramic sealing	
Quantity packed in whole case		12/box		12/box		12/box	

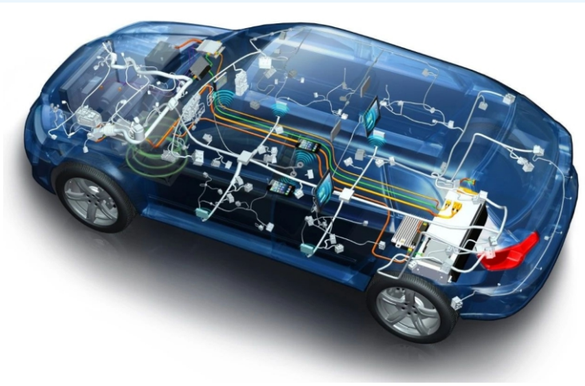
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Automotive relay

三友继电器 SANYOU RELAYS

Application Principles and Feature

- Automotive relay is split into one-touch relay, PCB relay and bolt relay (high current) according to mounting modes and functions.
- Rated voltage covering 12V, 24V and 48V, applied in the car system, seating system, dynamical system, safety system etc.



				
Type		SARI	SAF7	SAF9
Rated load current		25A	30A	30A(1a, 1c) 50A(2a)
Contact form		1c	1a	1a, 1c, 2a
Contact resistance		≤250mv(@10A)	≤250mv(@10A)	≤250mv(@10A)
Rated voltage		14VDC	12VDC	12VDC
Max. switching voltage		16VDC	16VDC	16VDC
Max. breaking current (A)		30A(14VDC)	Carry: 100A Break: 30A	Carry: 84A(1A,1C)/100A(2A) Break: 30A(1A,1C)/50A(2A)
Mechanical Endurance		1×10^7	1×10^7	1×10^7
Electrical Endurance		1×10^5	1×10^5	1×10^5
Dielectric Strength	Open contact	500VAC	500VAC	500VAC
	Coil contact	500VAC	500VAC	500VAC
Coil voltage		12,24	12	12
Pick-up voltage (VDC)		≤6.5	≤7	≤7 (0.9W coil) ≤7.5 (0.64W coil)
Drop-out voltage (VDC)		≥0.8	≥1	≥1
Ambient temperature (℃)		-40℃~110℃	-40℃~125℃	-40℃~125℃
Ambient humidity (RH)		5%~85%RH	5%~85%RH	5%~85%RH
Weight		3.5g	5g	10g
Exterior dimensions Length*Width*Height (mm)		12×7.3×14	14×9.2×14	17.8×13×16.4
Sealing form		plastic seal type	plastic seal type	plastic seal type
Quantity packed in whole case		2000/box	1400/box	500/box

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

				
Type		SARC	SARS	SARB
Rated load current		35A	35A	40A
Contact form		1a,1c	1a,1c	1a,1b,1c
Contact resistance		≤200mv(@10A)	≤200mv(@10A)	≤200mv(@10A)
Rated voltage		12/14VDC	12/24VDC	5/6/9/12/18/36/24/48VDC
Max. switching voltage		16VDC	28VDC	14VDC
Max. breaking current (A)		35A(14VDC)	35A(14VDC)	40A(14VDC)
Mechanical Endurance		1×10^7	1×10^7	1×10^7
Electrical Endurance		1×10^5	1×10^5	1×10^5
Dielectric Strength	Open contact	500VAC	500VAC	500VAC
	Coil contact	500VAC	500VAC	500VAC
Coil voltage		12, 24	12, 24	5/6/9/12/18/36/24/48
Pick-up voltage (VDC)		≤60%Un	≤60%Un	≤58%Un
Drop-out voltage (VDC)		≥10%Un	≥10%Un	≥10%Un
Ambient temperature (℃)		-40℃~125℃	-40℃~125℃	-40℃~125℃
Ambient humidity (RH)		5%~85%RH	5%~85%RH	5%~85%RH
Weight		19.4g	19.4g	20.5g
Exterior dimensions Length*Width*Height (mm)		22.5×25×15	22.5×25×15	25.5×21×21.5
Sealing form		plastic seal type	plastic seal type	plastic seal type
Quantity packed in whole case		600/box	600/box	400/box

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Type		SARN	SARJ	SARF
				
Rated load current		50A	70A	70A
Contact form		1a,1c	1a	1a
Contact resistance		≤200mv (@10A)	≤200mv (@10A)	≤200mv (@10A)
Rated voltage		12/24VDC	12/24VDC	16VDC
Max. switching voltage		28VDC	28VDC	14VDC
Max. breaking current (A)		50A(14VDC)	70A(14VDC)	70A(14VDC)
Mechanical Endurance		1×10^7	1×10^7	1×10^5
Electrical Endurance		1×10^5	1×10^5	1×10^4
Dielectric Strength	Open contact	500VAC	500VAC	500VAC
	Coil contact	500VAC	500VAC	500VAC
Coil voltage		12,24	12,24	06,12,24,36
Pick-up voltage (VDC)		≤60%Un	≤60%Un	≤60%Un
Drop-out voltage (VDC)		≥10%Un	≥10%Un	≥10%Un
Ambient temperature (℃)		-40℃~85℃	-40℃~85℃	-40℃~125℃
Ambient humidity (RH)		5%~85%RH	5%~85%RH	5%~85%RH
Weight		32g	36g	36g
Exterior dimensions Length*Width*Height (mm)		26×26×22.7	26×26×22.7	26.4×26.4×25.2
Sealing form		plastic seal type	plastic seal type	plastic seal type
Quantity packed in whole case		500/box	500/box	100/box

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Type		SAR18	SY200
			
Rated load current		150A	250A
Contact form		1a	1a
Contact resistance		≤0.75mΩ (@150A)	≤0.3mvΩ (@10A)
Rated voltage		48VDC	14VDC
Max. switching voltage		70VDC	14VDC
Max. breaking current (A)		3300A(55VDC)	2000A
Mechanical Endurance		5×10^5	5×10^5
Electrical Endurance		5×10^3	1×10^4
Dielectric Strength	Open contact	1000VAC	1000VAC
	Coil contact	1000VAC	1000VAC
Coil voltage		12,24	12,24
Pick-up voltage (VDC)		≤10	≤4
Drop-out voltage (VDC)		≥1.2	≤4
Ambient temperature (℃)		-40℃~125℃	-40℃~105℃
Ambient humidity (RH)		5%~85%RH	5%~85%RH
Weight		110g	110g
Exterior dimensions Length*Width*Height (mm)		50×50×28.5	71.3×48×18.8
Sealing form		plastic seal type	plastic seal type
Quantity packed in whole case		100/box	120/box

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Precautions for using Relays

NOTES:

- **Mounting Attention**
  1. In principle, please do not use it when the relay has fallen down.
  2. The relay contacts are sealed and filled with gas. When the contact temperature changes, there is internal gas penetrating characteristic. SANYOU relays are forbidden to be used at the temperature beyond our suggestion -40 ℃ ~ 85 ℃ for long time.
  3. When installing the relay, always use washers to prevent the screws from loosening.
  4. Tighten each screw within the rated range given in the outline dimensions. Exceeding the maximum torque may result in breakage.
  5. Avoid mounting the relay in strong magnetic fields (near a transformer or magnet) or close to an object that radiates heat.
- **Electrical Life Attention**
  1. This relay is a DC high-voltage switch. In its final breakdown mode, it may lose the ability to provide the proper cut-off. Therefore, do not exceed the indicated switching capacity and life.
  2. Please treat the relay as a product with limited life and replace it when necessary.
  3. The contacts of the relay are polarized. Please follow instructions in the connection schematic when connecting the contacts.
  4. Be careful that foreign matter and oils and fats kind, don t stick to the main terminal parts because it is likely to cause terminal parts to give off unusual heat. Also, please use the following specifications of conductor.

10A	Min. 2mm2 nominal cross-sectional area
20A	Min. 3mm2 nominal cross-sectional area
40A	Min. 10mm2 nominal cross-sectional area
60A	Min. 15mm2 nominal cross-sectional area
100A	Min. 35mm2 nominal cross-sectional area
150A	Min. 45mm2 nominal cross-sectional area
200A	Min. 60mm2 nominal cross-sectional area
250A	Min. 80mm2 nominal cross-sectional area
300A	Min. 100mm2 nominal cross-sectional area

Industrial relay

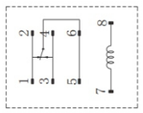
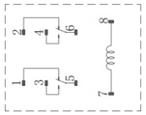
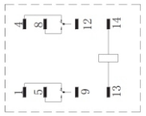
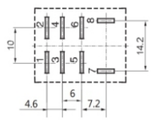
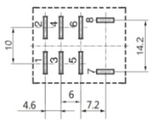
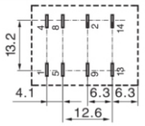
三友继电器 SANYOU RELAYS

Feature

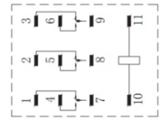
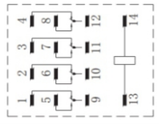
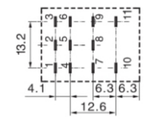
- Contact switching current: 5A~15A
- Contact rating: 250VAC
- Coil power: 0.9W(DC) / 1.3VA(AC);
- Certifications:CQC / UL /VDE
- Terminals: PCB, socket, flange

Applications:

- Electrical appliance
- Office equipments
- Industrial PLC
- Vending machine
- Cooking applicance
- Safety control

Type		SME-1P	SME-2P	SMET-2P
Exterior dimensions, Length * Width * Height(mm)		27.3×21×35.2	27.3×21×35.2	27.3×21×35.2
Contact form		1a,1c	2a,2c	2a,2c
Contact switching current		15A	10A	5A
Contact rating		15A 250VAC 15A 30VAC	10A 250VAC 10A 30VAC	5A 250VAC 5A 28VAC
Coil voltage		6-110VDC 6-240VAC	6-110VDC 6-240VAC	6-110VDC 6-240VAC
Coil power (w)		约0.9W 约1.2VA	约0.9W 约1.2VA	约0.9W 约1.2VA
Contact resistance		≤100mΩ	≤100mΩ	≤100mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ	≥1000MΩ
Endurance (times)	Mechanics	1×10^7	1×10^7	1×10^7
	Electrical	1×10^5	1×10^5	1×10^5
Dielectric Strength	Open contact	1000VAC	1000VAC	1000VAC
	Coil contact	1500VAC	1500VAC	1500VAC
Ambient temperature		-25℃~70℃	-25℃~70℃	-25℃~70℃
Wiring diagram (bottom view)				
Outline dimension (mm)				
Installation form		Printed format, Socket, Flange	Printed format, Socket, Flange	Printed format, Socket, Flange
Unit weight		37g	37g	37g
Safety certification		cULus CQC VDE	cULus CQC VDE	cULus CQC

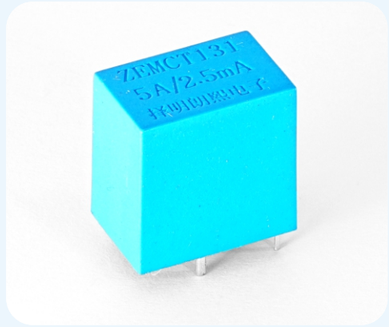
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Type		SMET-3P	SMET-4P
Exterior dimensions, Length * Width * Height(mm)		27.3×21×35.2	27.3×21×35.2
Contact form		3a,3c	4a,4c
Contact switching current		5A	5A
Contact rating		5A 250VAC 5A 28VAC	5A 250VAC 5A 28VAC
Coil voltage		6-110VDC 6-240VAC	6-110VDC 6-240VAC
Coil power (w)		约0.9W 约1.2VA	约0.9W 约1.2VA
Contact resistance		≤100mΩ	≤100mΩ
Insulation resistance		≥1000MΩ	≥1000MΩ
Endurance (times)	Mechanics	1×10^7	1×10^7
	Electrical	1×10^5	1×10^5
Dielectric Strength	Open contact	1000VAC	1000VAC
	Coil contact	1500VAC	1500VAC
Ambient temperature		-25℃~70℃	-25℃~70℃
Wiring diagram (bottom view)			
Outline dimension (mm)			
Installation form		Printed format, Socket, Flange	Printed format, Socket, Flange
Unit weight		37g	37g
Safety certification		cULus CQC	cULus CQC

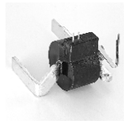
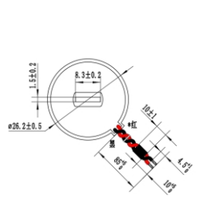
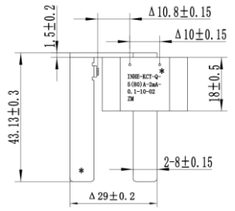
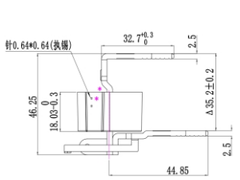
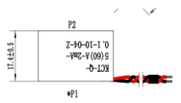
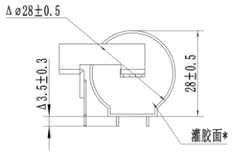
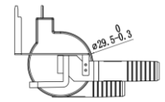
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Transformer

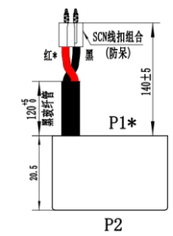
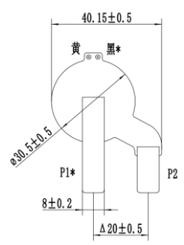
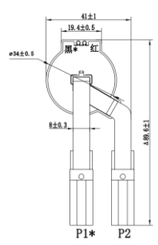
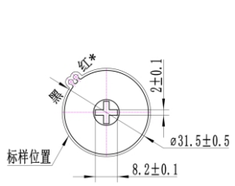
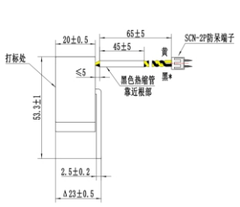
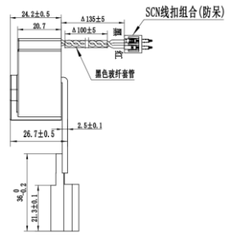
三友继电器
SANYOU RELAYS



Transformer for metering

			
Type	ZMDCT37	ZMDCT58	ZMDCT115A
Dimension external diameter×thickness (mm)	26.2*17.4	28*18	29.5*18
Rated input current (A)	5	5	5
Rated output current (mA)	2	2	2
Turns ratio	2500	2500	2500
Phase difference (′)	10	10	10
Max. current (A)	60	80	100
Load resistance (Ω)	10	10	10
Accuracy class	0.1	0.1	0.1
Magnetic resistant	No	No	No
Temperature (℃)	-40~85	-40~85	-40~85
Isolation of pressure (kV/min)	4	4	4
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Outline dimension (mm)			
Outline dimension (mm)			

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

			
Type	ZMDCT94C-1	ZMDCT215	ZMDCT119
Dimension external diameter×thickness (mm)	31.5*20.5	30.5*20	34*26.7
Rated input current (A)	5	5	10
Rated output current (mA)	2	2	4
Turns ratio	2500	2500	2500
Phase difference (′)	7	10	8
Max. current (A)	60	80	120
Load resistance (Ω)	10	10	10
Accuracy class	0.05	0.1	0.1
Magnetic resistant	Yes	No	No
Temperature (℃)	-40~85	-40~85	-40~85
Isolation of pressure (kV/min)	4	4	4
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Outline dimension (mm)			
Outline dimension (mm)			

Note: Specifications and dimensions are subject to change without notice.
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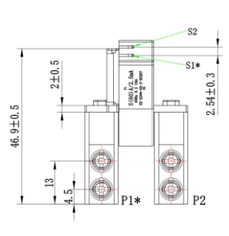
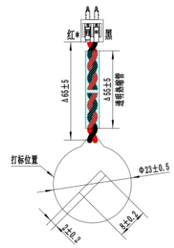
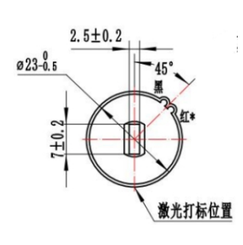
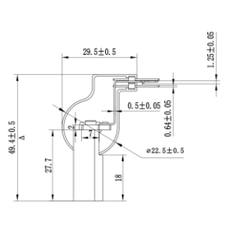
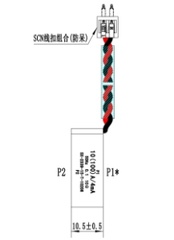
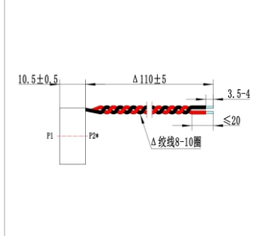
Type	ZMDCT147	ZMCT CB-88	ZMCT CB-94
Dimension external diameter×thickness (mm)	22.5*10.5	23*10.5	23*10.5
Rated input current (A)	5	10	5
Rated output current (mA)	2.5	4	2.5
Turns ratio	2000	2500	2000
Phase difference (′)	1100	8	10
Max. current (A)	60	100	60
Load resistance (Ω)	10	10	10
Accuracy class	0.2	0.1	0.1
Magnetic resistant	No	No	No
Temperature (℃)	-40~85	-40~85	-40~85
Isolation of pressure (kV/min)	4	4	4
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Outline dimension (mm)			
Outline dimension(mm)			

Note: Specifications and dimensions are subject to change without notice.
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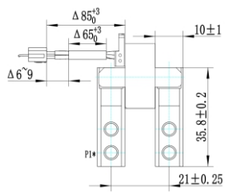
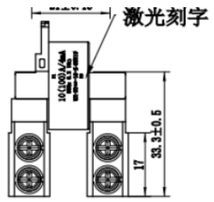
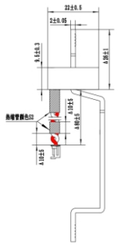
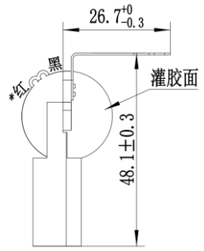
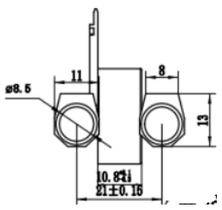
Type	ZMCT CB-95	ZMCT CB-48E	ZMCT CB-75B
Dimension external diameter×thickness (mm)	22.5*9.5	22.5*10.8	23.5*10.8
Rated input current (A)	5	5	10
Rated output current (mA)	2	2.5	5
Turns ratio	2500	2000	2450
Phase difference (′)	10	无要求	1000
Max. current (A)	80	60	60
Load resistance (Ω)	10	10	10
Accuracy class	0.2	0.2	5
Magnetic resistant	No	No	No
Temperature (℃)	-40~85	-40~85	-40~85
Isolation of pressure (kV/min)	4	4	4.5
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Outline dimension (mm)			
Outline dimension (mm)			

Note: Specifications and dimensions are subject to change without notice.
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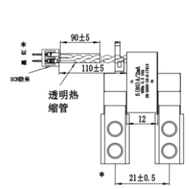
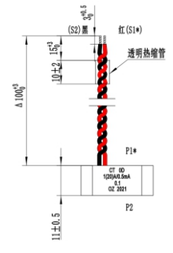
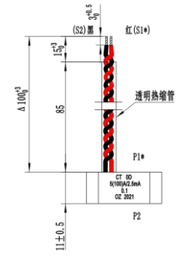
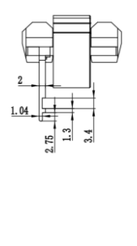
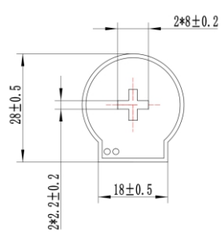
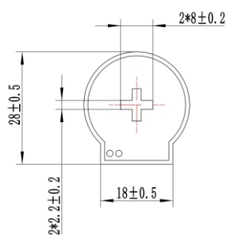
Type	ZMCT CB-75C	ZMCT CA-6	ZMCT CA-6B
Dimension external diameter×thickness (mm)	23.5*12	28*11	28*11
Rated input current (A)	5	1	5
Rated output current (mA)	2	0.5	2.5
Turns ratio	2500	2000	2000
Phase difference (′)	1000	8	8
Max. current (A)	80	20	100
Load resistance (Ω)	10	20	20
Accuracy class	0.2	0.1	0.1
Magnetic resistant	No	No	No
Temperature (℃)	-40~85	-40~85	-40~85
Isolation of pressure (kV/min)	4.5K	4K	4K
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Outline dimension (mm)			
Outline dimension (mm)			

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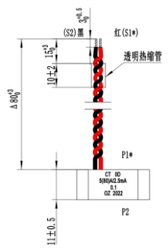
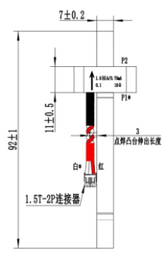
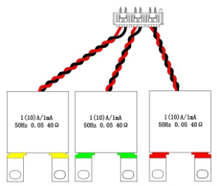
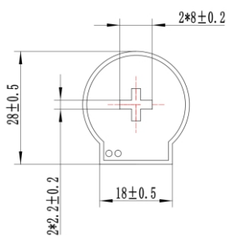
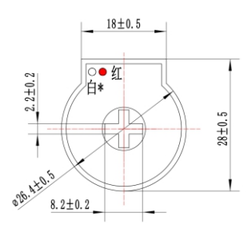
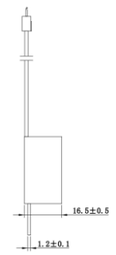
Type	ZMCT CA-6D	ZMCT CA-6H	ZMCD08-3A
Dimension external diameter×thickness (mm)	28*11	26.4*11	30*30*16.5
Rated input current (A)	5	1.5	1
Rated output current (mA)	2.5	0.75	1
Turns ratio	2000	2000	2000
Phase difference (′)	8	10	7
Max. current (A)	80	6	10
Load resistance (Ω)	20	10	40
Accuracy class	0.1	0.2	0.05
Magnetic resistant	No	No	No
Temperature (℃)	-40~85	-40~85	-40~85
Isolation of pressure (kV/min)	4	4	4
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Outline dimension (mm)			
Outline dimension (mm)			

Note: Specifications and dimensions are subject to change without notice.
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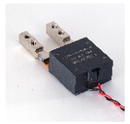
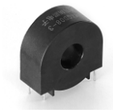
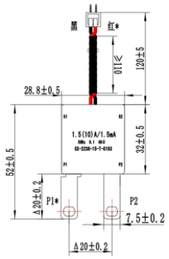
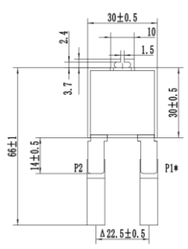
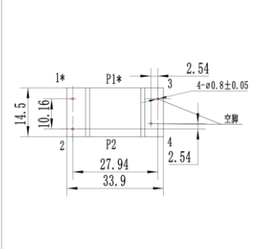
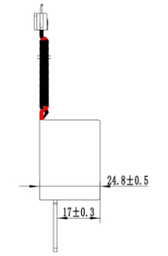
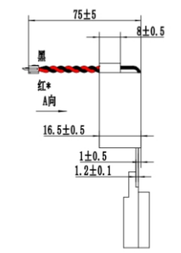
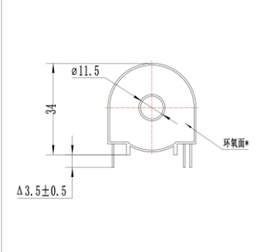
			
Type	ZMCD31	ZMCD38	ZMXQD08-3
Dimension external diameter×thickness (mm)	32*28.8*24.8	30*30*16.5	34*14.5
Rated input current (A)	1.5	1	100
Rated output current (mA)	1.5	1	40
Turns ratio	2000	2000	2500
Phase difference (′)	9	9	500
Max. current (A)	10	10	100
Load resistance (Ω)	40	40	10
Accuracy class	0.05	0.05	1
Magnetic resistant	Yes	No	No
Temperature (℃)	-40~85	-40~85	-40~85
Isolation of pressure (kV/min)	4	4	4
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Outline dimension (mm)			
Outline dimension (mm)			

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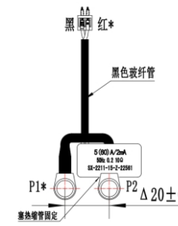
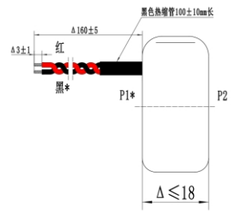
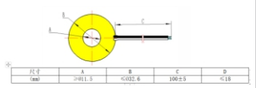
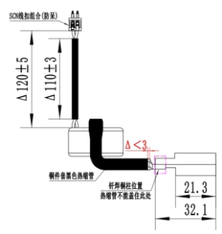
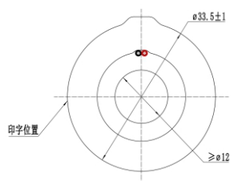
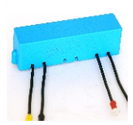
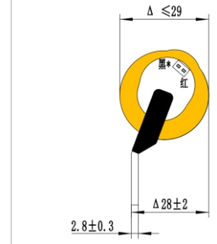
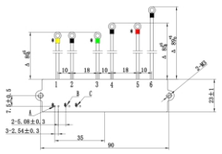
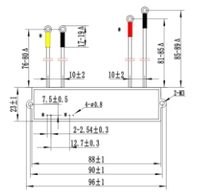
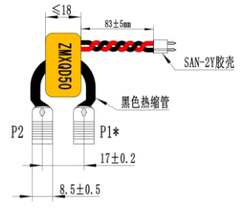
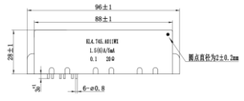
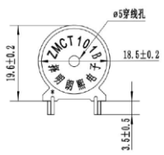
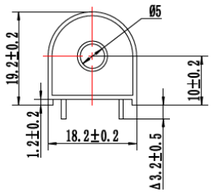
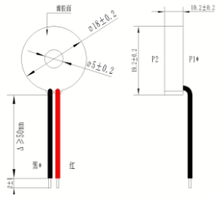
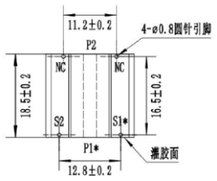
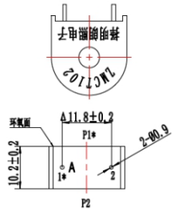
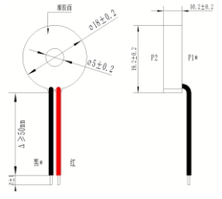
Type	ZMXQD20	ZMXQD44	ZMXQD45
Dimension external diameter×thickness (mm)	32.6*18	29*17	33.5*18
Rated input current (A)	5	5	5
Rated output current (mA)	2	2	2
Turns ratio	2500	2500	2500
Phase difference (′)	10	7	10
Max. curren t(A)	80	60	120
Load resistance (Ω)	10	10	10
Accuracy class	0.1	0.05	0.1
Magnetic resistant	No	No	No
Temperature (℃)	-40~85	-40~85	-40~85
Isolation of pressure (kV/min)	3	4	4
Sealing material	/	/	/
Outline dimension (mm)			
Outline dimension (mm)			

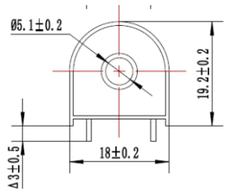
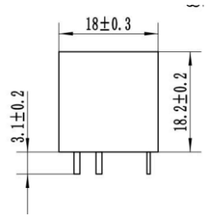
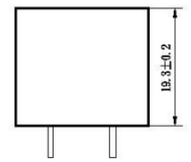
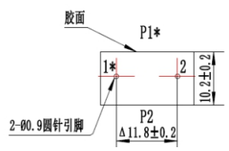
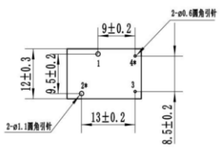
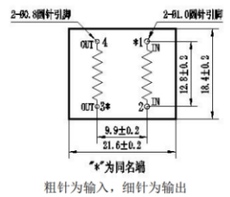
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

			
Type	ZMXQD50	ZMC-N3-4	ZMC-R3-2
Dimension external diameter×thickness (mm)	29*18	96*23*28	96*23*28
Rated input current (A)	10	1.5	1.5
Rated output current (mA)	5	5	5
Turns ratio	2000	300	300
Phase difference (′)	10	10	8
Max. current (A)	100	6	6
Load resistance (Ω)	10	20	20
Accuracy class	0.1	0.1	0.1
Magnetic resistant	No	No	No
Temperature (℃)	-40~85	-40~85	-40~85
Isolation of pressure (kV/min)	4	4	4
Sealing material	/	Epoxy resin	Epoxy resin
Outline dimension (mm)			
Outline dimension (mm)			

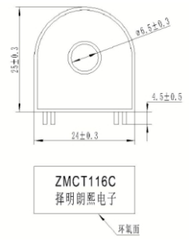
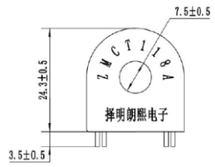
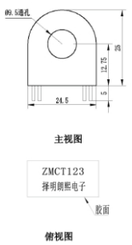
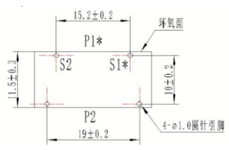
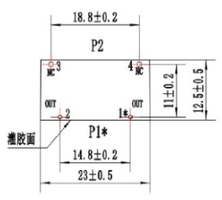
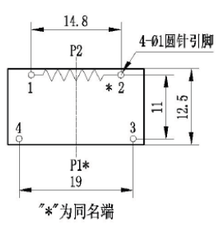
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Type	ZMCT101B	ZMCT102	ZMCT102W
Dimension (mm) inner diameter×Length×Width×Height	5*18.5*19.6*18.5	5*18.2*10.2	5*18*10.2
Rated input current (A)	5	5	5
Rated output current (mA)	2.5	2.5	2.5
Turns ratio	2000	2000	2000
Phase difference (′)	60	20	30
Max. current (A)	100	20	20
Load resistance (Ω)	20	100	100
Accuracy class	0.5	0.2	0.2
Temperature (℃)	-40~85	-40~85	-40~85
Isolation of pressure (kV/min)	4	4	4
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Outline dimension (mm)			
Outline dimension (mm)			

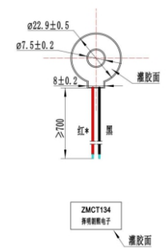
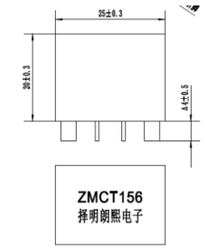
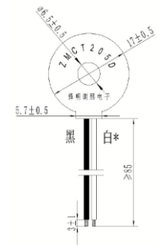
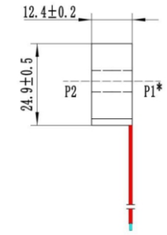
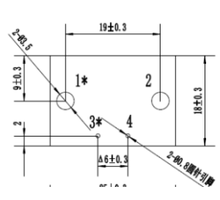
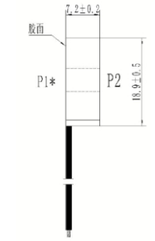
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Type	ZMCT103	ZEMCT131	ZMCT115M
Dimension (mm) inner diameter×Length×Width×Height	5.1*18*10.2	18*18.2*12	19.3*21.6*18.4
Rated input current (A)	5	5	5
Rated output current (mA)	5	2.5	2.5
Turns ratio	1000	2000	2000
Phase difference (′)	15	20	15
Max. current (A)	10	20	20
Load resistance (Ω)	50	100	100
Accuracy class	0.2	0.2	0.2
Temperature (℃)	-40~85	-40~85	-40~85
Isolation of pressure (kV/min)	4	4	4
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Outline dimension (mm)			
Outline dimension (mm)			

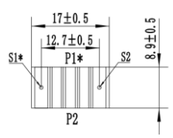
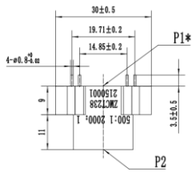
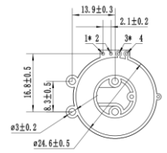
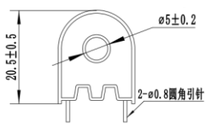
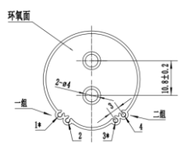
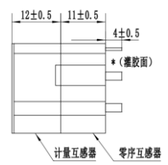
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Type	ZMCT116C	ZMCT118A	ZMCT123
Dimension (mm) inner diameter×Length×Width×Height	6.5*24*25*11.5	7.5*23*24.3*12.5	9.5*24.5*25*12.5
Rated input current (A)	5	5	5
Rated output current (mA)	2.5	2.5	2.5
Turns ratio	2000	2000	2000
Phase difference (′)	20	15	30
Max. current (A)	40	40	80
Load resistance (Ω)	50	50	50
Accuracy class	0.2	0.2	0.2
Temperature (℃)	-40~85	-40~85	-40~85
Isolation of pressure (kV/min)	4	4	4
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Outline dimension (mm)			
Outline dimension (mm)			

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

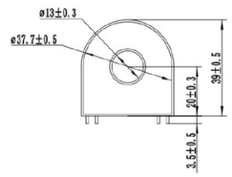
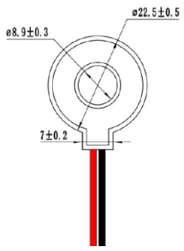
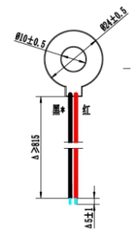
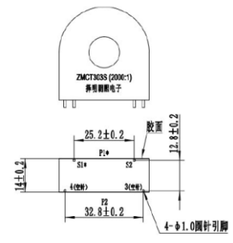
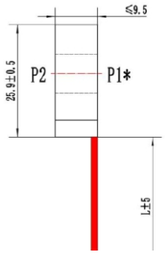
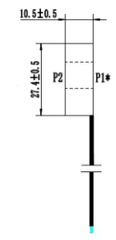
Type	ZMCT134	ZMCT156	ZMCT205D
Dimension (mm) inner diameter×Length×Width×Height	7.5*22.9*24.9*12.4	25*18*20	6.5*17*18.9*7.2
Rated input current (A)	5	5	5
Rated output current (mA)	2.5	2.5	5
Turns ratio	2000	2000	1000
Phase difference (′)	30	30	60
Max. current (A)	40	35	5
Load resistance (Ω)	50	56	25
Accuracy class	0.2	0.5	0.5
Temperature (℃)	-40~85	-40~85	-40~85
Isolation of pressure (kV/min)	4	4	4
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Outline dimension (mm)			
Outline dimension (mm)			

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

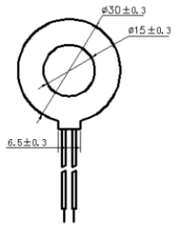
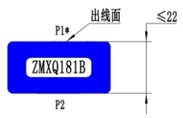
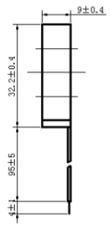
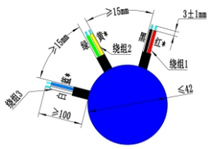
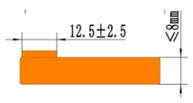
Type	ZMCT206-1500	ZMCT238	ZMCT251C
Dimension (mm) inner diameter×Length×Width×Height	5*17*20.5*8.9	4*30*20	3*24.6*23
Rated input current (A)	6	30/1	30/1
Rated output current (mA)	4	15/2	15/2
Turns ratio	1500	2000/500	2000/500
Phase difference (′)	30	20	20
Max. current (A)	6	30/1	30/1
Load resistance (Ω)	50	100	10
Accuracy class	0.5	0.5	0.1
Temperature (℃)	-40~85	-40~85	-40~85
Isolation of pressure (kV/min)	4	4	4
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Outline dimension (mm)			
Outline dimension (mm)			

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Transformer for measurement

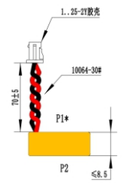
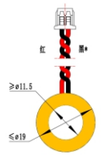
Type	ZMCT303S	ZMCT350B	ZMCT356
Dimension (mm) inner diameter×Length×Width×Height	13*37.7*39*14	8.5*22.9*25.9*9.5	10*24*27.4*10.5
Rated input current (A)	5	5	5
Rated output current (mA)	2.5	5	2.5
Turns ratio	2000	1000	2000
Phase difference (′)	30	30	20
Max. current (A)	200	10	50
Load resistance (Ω)	10	100	10
Accuracy class	0.1	0.5	0.5
Temperature (℃)	-40~85	-40~85	-40~85
Isolation of pressure (kV/min)	4	4	4
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Outline dimension (mm)			
Outline dimension (mm)			

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

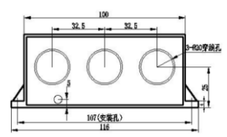
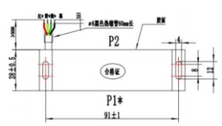
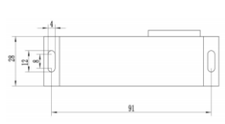
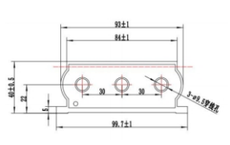
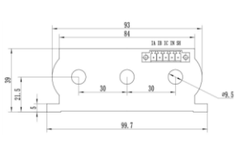
			
Type	ZMCT360	ZMXQ181B	ZMXQ248
Dimension (mm) inner diameter×Length×Width×Height	15*30*32.2*9	42*22	18*25.5*37.5*45*8
Rated input current (A)	5	1.876V	1.5
Rated output current (mA)	5	1.876V/2.175V	1.5
Turns ratio	1000	2500/2500/2900	1000
Phase difference (′)	20	5	/
Max. current (A)	10	/	/
Load resistance (Ω)	20	/	20
Accuracy class	0.2	0.1	1
Temperature (℃)	-40~75	-40~75	-25~85
Isolation of pressure (kV/min)	4	2	3
Sealing material	Epoxy resin	/	/
Outline dimension (mm)			
Outline dimension (mm)			

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

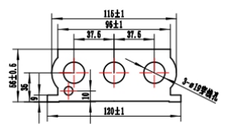
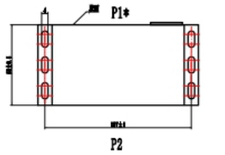
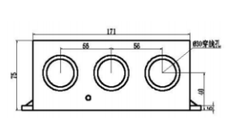
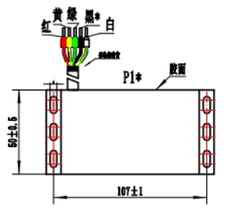
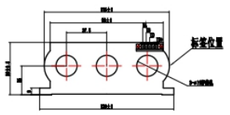
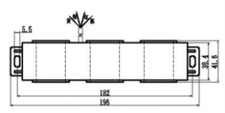
Transformer for measurement

	
Type	ZMXQ256
Dimension (mm) inner diameter×Length×Width×Height	11.5*19*8.5
Rated input current (A)	5
Rated output current (mA)	2.5
Turns ratio	2000
Phase difference (′)	/
Max. current (A)	80
Load resistance (Ω)	10
Accuracy class	0.5
Temperature (℃)	-25~75
Isolation of pressure (kV/min)	3
Sealing material	/
Outline dimension (mm)	
Outline dimension (mm)	

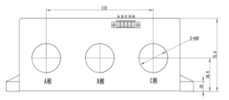
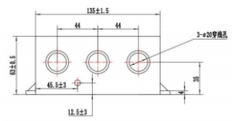
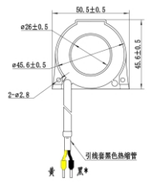
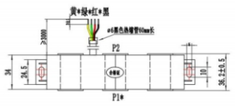
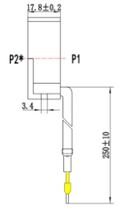
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

			
Type	ZMCT305	ZMCT306	ZMCT306-1
Dimension (mm) inner diameter×Length×Width×Height	20-107-45.5-42	10-100-39-28	10-100-39-28
Rated input current (A)	100	10	10
Rated output current (mA)	40	4	4
Turns ratio	2500	2500	2500
Phase difference (′)	60	60	60
Max. current (A)	/	/	/
Load resistance (Ω)	10	10	10
Accuracy class	0.5	0.5	0.5
Temperature (℃)	-25~+70	-25~+70	-25~+70
Isolation of pressure (kV/min)	3	3	3
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Installation form	Output lead installation	Output lead installation	Socket
Outline dimension (mm)			
Outline dimension (mm)			

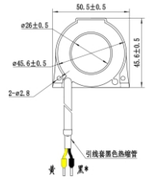
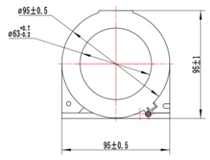
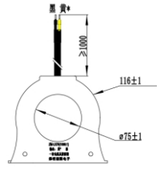
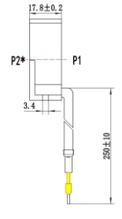
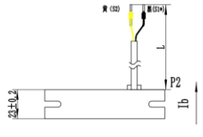
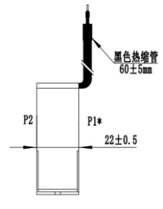
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

			
Type	ZMCT307	ZMCT307-1	ZMCT308
Dimension (mm) inner diameter×Length×Width×Height	20-120-56-50	20-120-56-50	30-196-75-38
Rated input current (A)	25	25	250
Rated output current (mA)	1.05V	1.25V	50mA
Turns ratio	/	/	5000
Phase difference (′)	60	40±15	60
Max. current (A)	/	/	/
Load resistance (Ω)	/	/	10
Accuracy class	0.5	0.5	0.5
Temperature (℃)	-25~+70	-25~+70	-25~+70
Isolation of pressure (kV/min)	3	3	3
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Installation form	Output lead installation	Socket	Output lead installation
Outline dimension (mm)			
Outline dimension(mm)			

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

			
Type	ZMCT308-1	ZMCT309	ZM-LX25
Dimension (mm) inner diameter×Length×Width×Height	30-196-75-38	20-135-63-36	25-51-46-18
Rated input current (A)	200	200	10
Rated output current (mA)	50	50	10
Turns ratio	4000	4000	1000
Phase difference (′)	60	60	/
Max. current (A)	/	/	20
Load resistance (Ω)	5	10	20
Accuracy class	0.5	0.5	1
Temperature (℃)	-25~+70	-25~+70	-25~+70
Isolation of pressure (kV/min)	3	3	3
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Installation form	Output lead installation	Output lead installation	Output lead installation
Outline dimension (mm)			
Outline dimension (mm)			

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

			
Type	ZM-LX45	ZM-LX60	ZM-LX75
Dimension (mm) inner diameter×Length×Width×Height	45-45-51-18	60-95-95-23	75-137-126.5-22
Rated input current (A)	10	10	10
Rated output current (mA)	10	10	10
Turns ratio	1000	1000	1000
Phase difference (′)	/	/	/
Max. current (A)	20	20	20
Load resistance (Ω)	20	20	20
Accuracy class	1	1	1
Temperature (℃)	-40~+70	-40~+70	-40~+70
Isolation of pressure (kV/min)	3	3	3
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Installation form	Output lead installation	Output lead installation	Output lead installation
Outline dimension (mm)			
Outline dimension (mm)			

Note: Specifications and dimensions are subject to change without notice.
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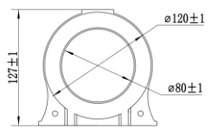
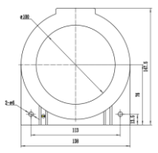
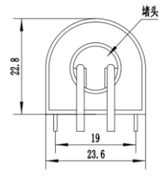
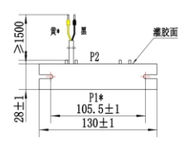
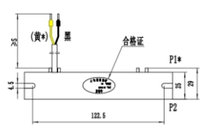
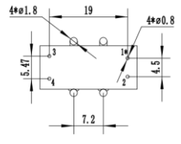
Type	ZM-LX80	ZM-LX100	ZM-LXCT04
Dimension (mm) inner diameter×Length×Width×Height	80-127-130-28	100-139-147-25	10.5-22.7-10.5
Rated input current (A)	10	10	5
Rated output current (mA)	10	10	5
Turns ratio	1000	1000	1000
Phase difference (′)	/	/	/
Max. current (A)	20	20	30
Load resistance (Ω)	20	20	20
Accuracy class	1	1	1
Temperature (℃)	-40~+70	-40~+70	-40~+70
Isolation of pressure (kV/min)	3	3	3
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Installation form	Output lead installation	Output lead installation	pin
Outline dimension (mm)			
Outline dimension (mm)			

Note: Specifications and dimensions are subject to change without notice.
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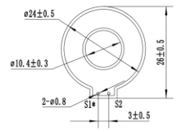
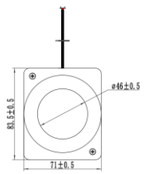
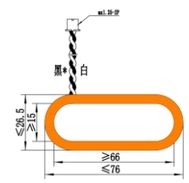
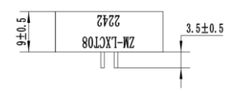
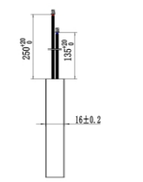
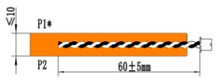
Type	ZM-LXCT08	ZM-LXCT31	ZM-LXCT35
Dimension (mm) inner diameter×Length×Width×Height	10.4-24-9	46-71-83.5-16	15-26.5-66-76-10
Rated input current (A)	30mA	1A	18mA
Rated output current (mA)	15μA	1mA	18μA
Turns ratio	2000	1000	1000
Phase difference (′)	/	/	/
Max. current (A)	36mA	2A	36mA
Load resistance (Ω)	1000	100	324
Accuracy class	0.5	0.5	0.5
Temperature (℃)	-40~+85	-40~+85	-20~+60
Isolation of pressure (kV/min)	3	3	3
Sealing material	Epoxy resin	Epoxy resin	coil
Installation form	pin	Output lead installation	Output lead installation
Outline dimension (mm)			
Outline dimension (mm)			

Note: Specifications and dimensions are subject to change without notice.
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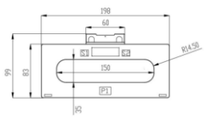
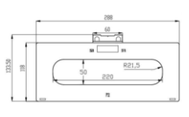
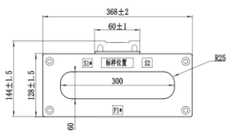
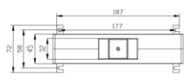
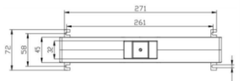
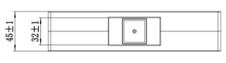
Type	ZMCTLF01	ZMCTLF02	ZMCTLF03
Dimension (mm) inner diameter×Length×Width×Height	35-150-83-198-45	50-220-118-288-45	60-300-128-368-45
Rated input current (A)	1	1	1
Rated output current (mA)	0.5	0.5	0.5
Turns ratio	2000	2000	2000
Phase difference (′)	/	/	/
Max. current (A)	2	2	2
Load resistance (Ω)	500	500	500
Accuracy class	0.5	0.5	0.5
Temperature (℃)	-25~+70	-25~+70	-25~+70
Isolation of pressure (kV/min)	3	3	3
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Installation form	terminal	terminal	terminal
Outline dimension (mm)			
Outline dimension (mm)			

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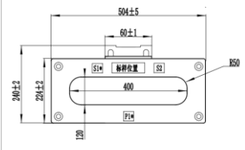
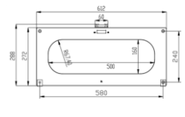
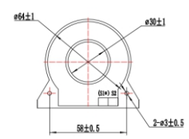
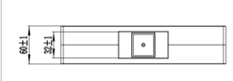
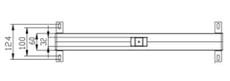
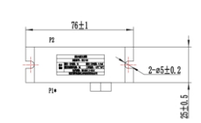
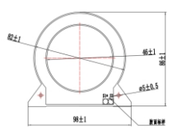
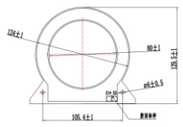
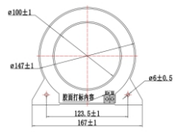
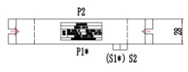
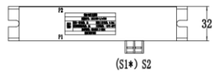
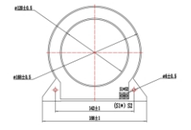
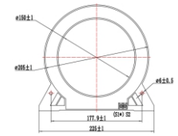
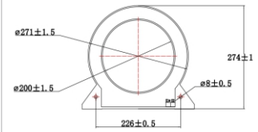
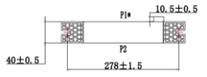
For detailed product information, please refer to the relevant product specifications.

			
Type	ZMCTLF04	ZMCTLF05	ZMCTLY-30
Dimension (mm) inner diameter×Length×Width×Height	120-400-224-504-60	160-500-272-612-60	30-64-25
Rated input current (A)	1	1	1
Rated output current (mA)	0.5	0.5	0.5
Turns ratio	2000	2000	2000
Phase difference (′)	/	/	/
Max. current (A)	2	2	2
Load resistance (Ω)	500	500	500
Accuracy class	0.5	0.5	0.5
Temperature (℃)	-25~+70	-25~+70	-25~+70
Isolation of pressure (kV/min)	3	3	3
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Installation form	terminal	terminal	terminal
Outline dimension (mm)			
Outline dimension (mm)			

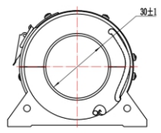
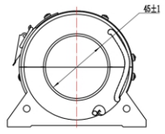
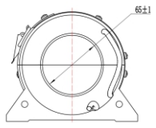
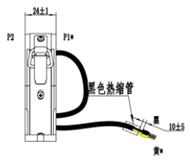
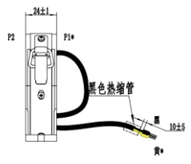
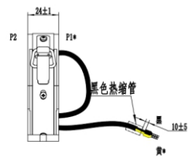
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

			
Type	ZMCTLY-46	ZMCTLY-80	ZMCTLY-100
Dimension (mm) inner diameter×Length×Width×Height	46-82-28	80-124-32	100-147-32
Rated input current (A)	1	1	1
Rated output current (mA)	0.5	0.5	0.5
Turns ratio	2000	2000	2000
Phase difference (′)	/	/	/
Max. current (A)	2	2	2
Load resistance (Ω)	500	500	500
Accuracy class	0.5	0.5	0.5
Temperature (℃)	-25~+70	-25~+70	-25~+70
Isolation of pressure (kV/min)	3	3	3
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Installation form	terminal	terminal	terminal
Outline dimension (mm)			
Outline dimension (mm)			

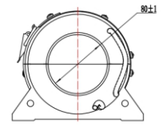
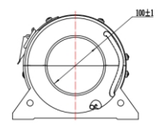
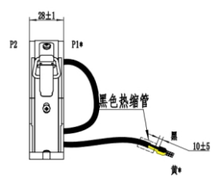
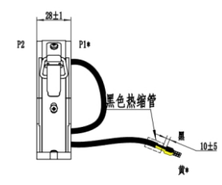
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

			
Type	ZMCTLY-120	ZMCTLY-150	ZMCTLY-200
Dimension (mm) inner diameter×Length×Width×Height	120-168-32	150-205-32	200-272-40
Rated input current (A)	1	1	1
Rated output current (mA)	0.5	0.5	0.5
Turns ratio	2000	2000	2000
Phase difference (′)	/	/	/
Max. current (A)	2	2	2
Load resistance (Ω)	500	500	500
Accuracy class	0.5	0.5	0.5
Temperature (℃)	-25~+70	-25~+70	-25~+70
Isolation of pressure (kV/min)	3	3	3
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Installation form	terminal	terminal	terminal
Outline dimension (mm)			
Outline dimension (mm)			

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

			
Type	ZMCTLKX-30	ZMCTLKX-45	ZMCTLKX-65
Dimension (mm) inner diameter×Length×Width×Height	30-24	45-24	65-24
Rated input current (A)	1	1	1
Rated output current (mA)	0.5	0.5	0.5
Turns ratio	2000	2000	2000
Phase difference (′)	/	/	/
Max. current (A)	2	2	2
Load resistance (Ω)	500	500	500
Accuracy class	0.5	0.5	0.5
Temperature (℃)	-25~+70	-25~+70	-25~+70
Isolation of pressure (kV/min)	3	3	3
Sealing material	Epoxy resin	Epoxy resin	Epoxy resin
Installation form	Output lead installation	Output lead installation	Output lead installation
Outline dimension(mm)			
Outline dimension(mm)			

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

		
Type	ZMCTLKX-80	ZMCTLKX-100
Dimension (mm) inner diameter×Length×Width×Height	80-28	100-28
Rated input current (A)	1	1
Rated output current (mA)	0.5	0.5
Turns ratio	2000	2000
Phase difference (′)	/	/
Max. current (A)	2	2
Load resistance (Ω)	500	500
Accuracy class	0.5	0.5
Temperature (℃)	-25~+70	-25~+70
Isolation of pressure (kV/min)	3	3
Sealing material	Epoxy resin	Epoxy resin
Installation form	Output lead installation	Output lead installation
Outline dimension(mm)		
Outline dimension(mm)		

Note: Specifications and dimensions are subject to change without notice.
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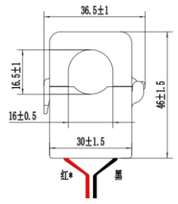
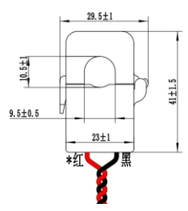
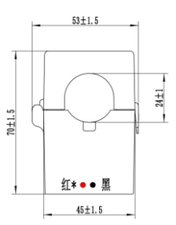
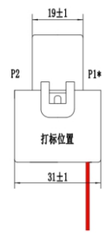
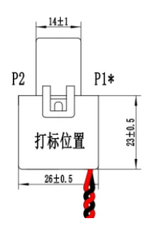
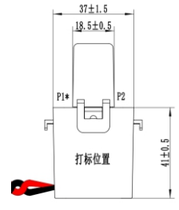
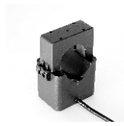
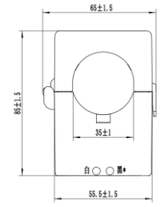
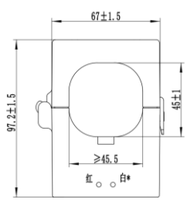
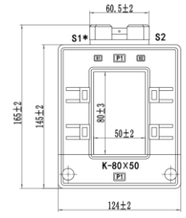
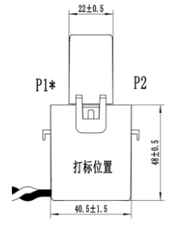
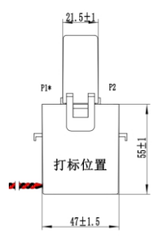
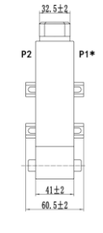
Split core current transformers

			
Type	ZEMCTK04	ZEMCTK05	ZEMCTK08
Dimension (mm) inner diameter×Length×Width×Height	16*32*30*46.5	10*26*23*41	24*45*37*70
Rated input current (A)	0~150	0~75	0~700
Rated output current	0~100mA	0~50mA	0~5A
Turns ratio	500-5000	500~4000	30-8000
Phase difference (′)	60	90	60
Max. current (A)	150	75	700
Load resistance (Ω)	10	10	10
Accuracy class	0.5	0.5	0.5
Temperature (℃)	-25~+75	-25~+75	-25~+75
Isolation of pressure (kV/min)	2.5	2.5	2.5
cover material	Nylon	Nylon	Nylon
Installation form	straight-through mounting	straight-through mounting	straight-through mounting
Outline dimension (mm)			
Outline dimension (mm)			

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Split core current transformers

			
Type	ZEMCTK09	ZEMCTK13	ZEMCTK17
Dimension (mm) inner diameter×Length×Width×Height	36*55.5*40.5*85	45*67*47*97	50*80*124*145*41
Rated input current (A)	0~1000	0~1200	0~1200
Rated output current	0-5A	0-5A	0-5A
Turns ratio	20~20000	20-25000	20-25000
Phase difference (′)	60	60	60
Max. current (A)	1000	1200	1200
Load resistance (Ω)	10	10	10
Accuracy class	0.5	0.5	0.5
Temperature (℃)	-25~+75	-25~+75	-25~+75
Isolation of pressure (kV/min)	2.5	2.5	2.5
cover material	Nylon	Nylon	Nylon
Installation form	straight-through mounting	straight-through mounting	straight-through mounting
Outline dimension (mm)			
Outline dimension (mm)			

Note: Specifications and dimensions are subject to change without notice.
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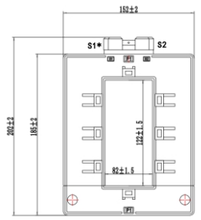
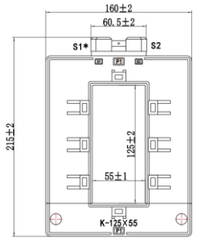
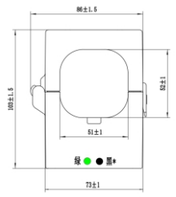
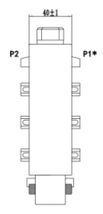
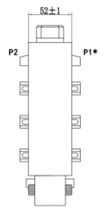
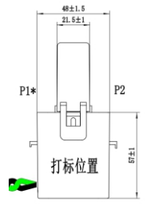
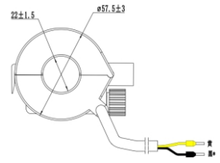
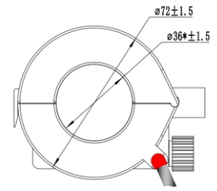
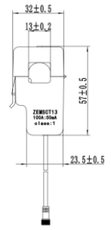
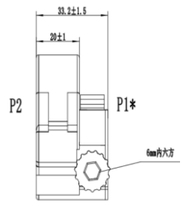
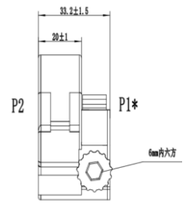
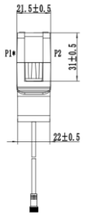
Split core current transformers

			
Type	ZEMCTK18	ZEMCTK19	ZEMCTK20
Dimension (mm) inner diameter×Length×Width×Height	82*122*152*185*40	55*125*160*215*52	50*73*48*103
Rated input current (A)	0~1500	0~3000	0~1200
Rated output current	0-5A	0-5A	0-5A
Turns ratio	20-25000	20-25000	20-25000
Phase difference (′)	60	60	60
Max. current (A)	1500	3000	1200
Load resistance (Ω)	10	10	10
Accuracy class	0.5	0.5	0055
Temperature (℃)	-25~+75	-25~+75	-25~+75
Isolation of pressure (kV/min)	2.5	2.5	2.5
cover material	Nylon	Nylon	Nylon
Installation form	straight-through mounting	straight-through mounting	straight-through mounting
Outline dimension (mm)			
Outline dimension (mm)			

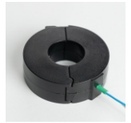
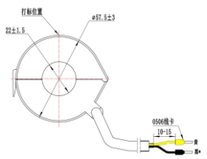
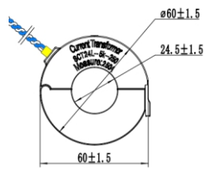
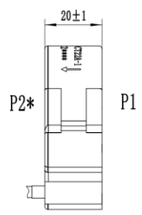
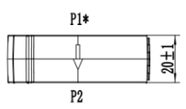
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Split core current transformers

			
Type	ZEMCTKCB01	ZEMCTKCB02	ZEMSCT13
Dimension (mm) inner diameter×Length×Width×Height	22*57*33.2	36*72*33.2	13*57*32*21.5
Rated input current (A)	0~400	0~800	0~100
Rated output current	0~80	0~100	0~100
Turns ratio	1000~5000	1000~8000	1000-3000
Phase difference (′)	60	60	60
Max. current (A)	400	800	100
Load resistance (Ω)	10	10	10
Accuracy class	0.5	0.5	0.5
Temperature (℃)	-25~+75	-25~+75	-25~+75
Isolation of pressure (kV/min)	2.5	2.5	2.5
cover material	PC+ABS	PC+ABS	Nylon
Installation form	straight-through mounting	straight-through mounting	straight-through mounting
Outline dimension (mm)			
Outline dimension (mm)			

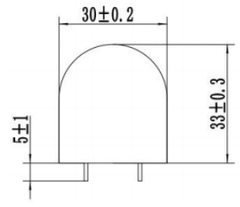
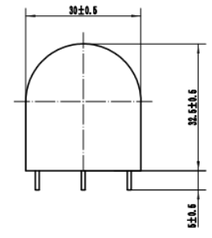
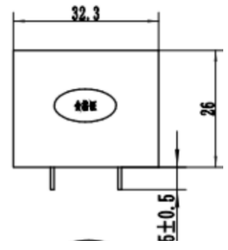
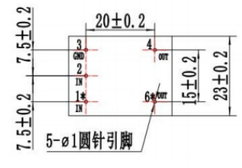
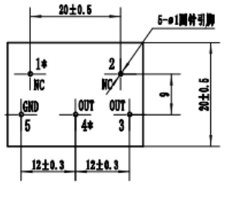
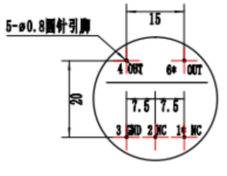
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Split core current transformers

		
Type	ZEMSCT22	ZEMSCT24
Dimension (mm) inner diameter×Length×Width×Height	22*57*20	24.5*60*20
Rated input current (A)	0~400	0~400
Rated output current	0~80	0~80
Turns ratio	1000-5000	1000-5000
Phase difference (′)	60	60
Max. current (A)	400	400
Load resistance (Ω)	10	10
Accuracy class	0.5	0.5
Temperature (℃)	-25~+75	-25~+75
Isolation of pressure (kV/min)	2.5	2.5
cover material	PC+ABS	PC+ABS
Installation form	straight-through mounting	straight-through mounting
Outline dimension (mm)		
Outline dimension (mm)		

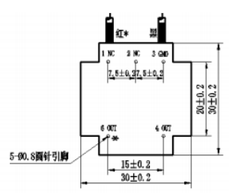
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Relay protection transformer

			
Type	ZM-TPTA serie	ZM-GPT serie	ZM-BPT serie
Dimension (mm) inner diameter×Length×Width×Height	30-23-33	30-20-32.5	32-26
Rated input voltage (V)	0~456	0~120	0~456
Rated output voltage (V)	0~7.07	0~7.07	0~7.07
Turns ratio	/	/	/
Phase difference (′)	10	10	10
frequency (Hz)	50	50	50
frequency (mA)	≤0.5	≤0.5	≤0.5
Accuracy class	0.2	0.2	0.2
Temperature (℃)	-40~+85	-40~+85	-40~+85
Isolation of pressure (kV/min)	3	3	3
cover material	PBT	PBT	PBT
Installation form	PCB Install	PCB Install	PCB Install
Outline dimension (mm)			
Outline dimension (mm)			

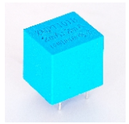
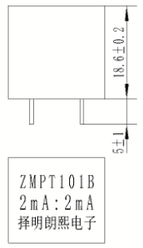
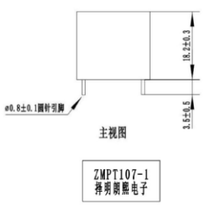
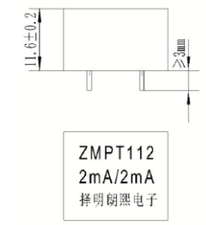
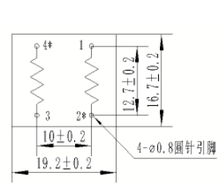
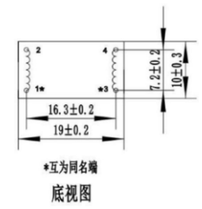
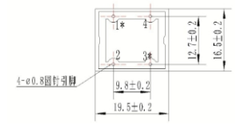
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Relay protection transformer

Type	ZM-RPT serie
Dimension (mm) inner diameter×Length×Width×Height	30-30-28.5
Rated input voltage (V)	0~456
Rated output voltage (V)	0~7.07
Turns ratio	/
Phase difference (′)	90
frequency (Hz)	50
frequency (mA)	≤0.5
Accuracy class	0.2
Temperature (℃)	-40~+85
Isolation of pressure (kV/min)	3
cover material	PBT
Installation form	PCB Install
Outline dimension (mm)	
Outline dimension (mm)	

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Current-type voltage transformer

			
Type	ZMPT101B	ZMPT107-1	ZMPT112
Dimension (mm) inner diameter×Length×Width×Height	19.2*16.7*18.6	19*10*18.2	19.5*16.5*11.6
Rated input voltage (V)	2	2	2
Rated output voltage (V)	2	2	2
Turns ratio	1000:1000	1000:1000	1000:1000
Phase difference (′)	20	45	45
frequency (Hz)	10	10	10
frequency (mA)	100	50	50
Accuracy class	-0.3%⩽ f ⩽+0.2%	-0.6% ⩽ f ⩽0%	-0.6% ⩽ f ⩽0%
Temperature (℃)	-40~+85	-40~+85	-40~+85
Isolation of pressure (kV/min)	3	3	3
cover material	PBT	PBT	PBT
Installation form	PCB Install	PCB Install	PCB Install
Outline dimension (mm)			
Outline dimension (mm)			

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Type	1k107 circle box			
	NMH10-12.4-3.2	NMH10-14-5	NMH10-15-6	NMH12-19-6.5
Inner diameter	φ8.90	φ8.60	φ8.50	φ10.40
External diameter	φ13.70	φ15.70	φ16.50	φ21.20
Height	4.60	7.15	7.60	8.10

Type	1k107 circle box			
	NMH14-19-8	NMH15-24-15	NMH16-21-10	NMH9.5-13.2-4
Inner diameter	φ12.30	φ13.10	φ13.65	φ7.90
External diameter	φ22.60	φ26.60	φ23.60	φ15.00
Height	10.10	17.20	11.98	5.70

Type	1K107 oval serie		1K107 square serie	
	NMH170-440-15-26	NMH86-320-12-23	NMH45-154-11-16.5	NMH73-319-13-21.5
Inner diameter	170*440	86*320	45*154	72*261
External diameter	200*470	110*344	67*176	98*287
Height	26.00	23.00	16.50	16.00

Type	1K107 circle painted			
	NMP10.3-13.7-5	NMP10.3-14.5-8	NMP10.3-14-3.2	NMP10.8-15.8-6.5
Inner diameter	φ9.70	φ9.80	φ9.60	φ10.00
External diameter	φ14.20	φ15.00	φ14.70	φ15.80
Height	5.50	8.50	4.00	6.70

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Type	1K107 circle painted			
	NMP10.9-14.3-6	NMP115-132-15	NMP12-18-10	NMP13.5-17.5-12
Inner diameter	φ10.40	φ114.00	φ11.50	φ13.00
External diameter	φ14.80	φ133.00	φ18.50	φ18.00
Height	6.40	15.50	10.50	12.50

Type	1K107 circle painted			
	NMP14.5-17.8-20	NMP16-24.4-14	NMP18-26-25	NMP35-55-30
Inner diameter	φ13.50	φ15.50	φ17.50	φ35.00
External diameter	φ18.50	φ24.90	φ26.50	φ55.00
Height	20.80	14.50	25.50	30.00

Type	1K107 circle painted			
	NMP38-57-17	NMP38-57-43	NMP38-65.5-22	NMP39-53-23
Inner diameter	φ38.00	φ37.00	φ38.00	φ38.50
External diameter	φ57.00	φ58.60	φ65.50	φ53.50
Height	18.00	43.50	22.00	23.50

Type	1K107 circle painted			1K107 oval serie
	NMP40-50-28	NMP40-53-32	NMP50-75-35	NMP10.3-56.3-4.5-8
Inner diameter	φ40.00	φ40.00	φ50.00	10*56.5
External diameter	φ50.00	φ53.00	φ75.00	19*65.5
Height	28.00	32.00	35.00	8.00

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Type	1K107 oval serie			
	NMP10-26-1.15-3.2	NMP11-28.5-3-6.5	NMP12-27-2-5	NMP18.8-40.8-2-10
Inner diameter	8.2*24.5	10.5*28	11.3*26.3	17.8*40.4
External diameter	13.8*29.5	17.5*35	16.5*31.5	23*45
Height	3.80	7.00	5.60	10.70

Type	1K107 oval serie		1K107 square serie	
	NMP20.3-50.8-1.75-6	NMP66-248-9.5-17	NMP16.5-16.5-2-6.5	NMP21-24.5-3-10
Inner diameter	19.8*50.3	66*248	16.50	20*24
External diameter	24.3*54.8	85*267	22.60	28.5*32
Height	7.00	17.00	7.00	10.60

Type	1K107 square serie
	NMP21-24.5-5.5-6
Inner diameter	20*23.5
External diameter	33.5*36.5
Height	6.60

Type	1K101 serie		
	FJH13-17.8-5	FJP12.5-22-10	FJP12.5-22-15
Inner diameter	φ11.60	φ12.00	φ12.00
External diameter	φ19.60	φ22.50	φ22.50
Height	6.30	10.50	15.50

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Type	Silicon iron circle serie			
	GGP11.5-15.5-8	GGP112-127-20	GGP12.5-14-6.5	GGP12.5-21-10
Inner diameter	φ11.50	φ111.50	φ11.80	φ12.50
External diameter	φ15.50	φ127.50	φ14.80	φ21.00
Height	8.00	20.00	7.20	10.00

Type	Silicon iron circle serie			
	GGP13-23-16	GGP14-16.5-5	GGP14-24.5-15	GGP20-26-5.5
Inner diameter	φ13.00	φ13.00	φ14.00	φ19.50
External diameter	φ23.00	φ17.60	φ24.50	φ26.80
Height	16.00	5.50	15.00	6.00

Type	Silicon iron circle serie			Silicon square serie
	GGP24.5-30-22	GGP25-30-30	GGP39-48-25	GGP17-30-3-12.5
Inner diameter	φ24.50	φ25.00	φ39.00	16*29
External diameter	φ30.00	φ30.00	φ48.00	24*37
Height	22.00	30.00	25.00	13.00

Type	Silicon square serie	
	GGP25-60-5-18	GGP21-24.5-4-8
Inner diameter	24*59	20.5*24
External diameter	36*71	29.5*33
Height	19.00	8.50

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Type	Silicon iron circle serie			
	GGQ18-27-5	GGQ32-44-11	GGQ37-46-9	GGQ44.5-64.5-15
Inner diameter	φ18.00	φ32.00	φ37.00	φ44.60
External diameter	φ27.00	φ44.00	φ46.00	φ64.40
Height	5.00	11.00	9.00	15.15

Type	Silicon iron circle serie			Silicon square serie
	GGQ52-62-10	GGQ55.5-85-30	GGQ58-73.5-18	GGQ101-137.5-16-19
Inner diameter	φ52.00	φ55.50	φ58.00	101*137.5
External diameter	φ62.00	φ85.00	φ73.50	133*169.5
Height	10.00	30.00	18.00	19.00

Type	Silicon square serie	
	GGQ-K13	GGQ-K20
Inner diameter	46.6*60.6	52*67.5
External diameter	63.2*76	69*83.5
Height	18.00	18.00

Type	Silicon iron circle serie
	TGH20-25-6.5
Inner diameter	φ18.10
External diameter	φ27.70
Height	9.30

Type	Silicon square serie			
	GGQ116-180.5-16-16	GGQ14-24-5.6-10	GGQ40-43-15-20	GGQ40-47.5-15-21
Inner diameter	116*180.5	14*24	40*43.5	40*47.5
External diameter	148*212.5	25.2*35.2	70.25*73	70*77.5
Height	16.00	10.00	19.80	21.00

Type	1K107 circle serie	
	NMH27.5-20-10	NMH32-20-10
Inner diameter	φ13.29	φ16.50
External diameter	φ28.28	φ35.10
Height	8.75	13.00

Type	Silicon square serie			
	GGQ71.5-94.5-15.25-15	GGQ97.5-129-16-13	GGQ-K08	GGQ-K09
Inner diameter	71.5*96.5	97.5*129	28.6*41	36.6*50.6
External diameter	102*127	129.5*161	41.1*54	53.2*66
Height	15.00	13.00	14.50	18.00

Type	1K107B circle serie
	ZSH20-26-10
Inner diameter	φ18.10
External diameter	φ27.90
Height	10.00

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Type	1K107B circle serie			
	ZSP12.1-18.3-5	ZSP12-19.5-6	ZSP13.8-22.5-6.5	ZSP16-20.5-10
Inner diameter	φ11.50	φ12.50	φ13.30	φ16.50
External diameter	φ18.80	φ20.00	φ23.00	φ21.00
Height	5.50	6.50	7.00	10.50

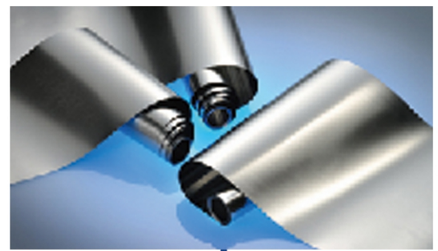
Type	1K107+1K101 serie			
	N/FH12-17-12	N/FH14-19-8	N/FH16-21-10	N/FH16-21-10D
Inner diameter	φ10.00	φ12.30	φ13.60	φ13.76
External diameter	φ19.40	φ22.50	φ23.60	φ25.20
Height	14.40	10.10	11.90	12.00

Type	1K107+1K101 serie	1K107+1K107B serie
	N/FH17-24-8	N/ZH16-21-10D
Inner diameter	φ15.20	φ13.70
External diameter	φ26.20	φ24.70
Height	10.00	12.00

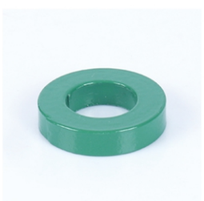
Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Industry and application of amorphous, nanocrystalline magnetically soft alloy

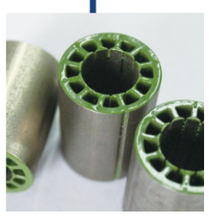
Application of Nanocrystalline magnetically soft alloy
Four applications: high-frequency transformer, EMC filter, current transformer, shielding absorbing




Power transformer


Precision current transformer core


Precision current transformer core


Coating core


Precision current transformer


High-frequency transformer core


High power transformer core


Shielding plate


Magnetic power core


Common mode core


Common mode core


Zero-sequence current transformer core


Common mode choke


Filter

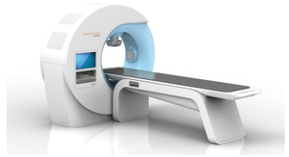

Filter


Concentrating flux plate

Industry and application of amorphous, nanocrystalline magnetically soft alloy

Feature: excellent appearance·tiny size·light weight·high accuracy·great consistency· damp proof & quake proof

Industrial power　New energy　Electricity power and electrical appliance　泄费电卞　Rail traffic



Medical equipment

Electrostatic

Inverter welding machine

Electromobile

Wind energy converter

Photovoltaic inverter

Electronic meter

High-voltage current transformer

Distribution transformer

Smart phone & wireless charging

Induction cooker

Air-conditioner

Automobile

Railway

Current transformer with nanocrystalline core

Features:

High-saturated intensity of magnetic flux

High anti-saturation resistance, high accuracy, high degree of linearity; applicable accuracy range: 0.5~0.05

High cost performance

Excellent high-low temperature cover range: -55~130℃

Application:

Transformer substation & overcurrent protection

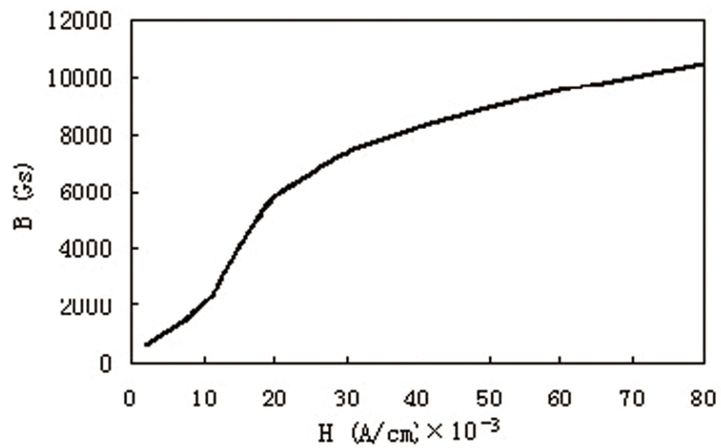
Current transformer for meter and electricity transducer

Performance:

Basic magnetic parameter	Intensity of the high saturated magnetic flux BS (T)	initial permeability (GS/Oe)	Max. magnetic permeability(GS/Oe)	Coercive force (A/m)	Density (g/cm3)	Core filling coefficient
Nanocrystalline FUO-I	1.2	50000~100000	>300000	<1.6	7.3	>0.70
Secondary current	0.7	50000~ 100000	> 200000	<0.8	8.8	>0.88

Magnetizing curve:

H-B Magnetizing curve:



Dimension & electrical parameter:

NO.	Core dimension(mm) ID*OD*H	Size(mm) ID*OD*H	Net sectional area (cm2)	Length of magnetic path(cm)	Inductance @1KHZ,	Weight(g)
1	9.5×13×5	8.3×14.5×6.7	0.065625	3.5325	≥40uH	≥1.7
2	9.5×13×5	8.3×14.5×6.7	0.065625	3.5325	≥60uH	≥1.7
3	9.6×13.2×10	8.2×15.2×12.1	0.135	3.5796	≥80uH	≥3.5
4	12×19×6.5	10.5×21.1×8.0	0.065625	4.867	≥55uH	≥6.2
5	13×17.5×6.5	11.5×20.3×8.8	0.11	4.7885	≥30uH	≥4.2
6	13×17.8×5	11.6×19.6×6.3	0.09	4.8356	≥35uH	≥3.3
7	13.2×21.5×10	11.6×19.6×6.3	0.09	4.8356	≥50uH	≥3.3
8	13.2×21.5×10	11.6×21.3×13	0.31125	5.4479	≥130uH	≥13
9	14×19× 8	11.9×22.5×10.4	0.165	5.2595	≥90uH	≥7
10	14×20×10	12.1×22×12.1	0.225	5.338	> 100uH	≥9.2
11	16×21×10	13.5×24.1×12.6	0.1875	5.809	≥80uH	≥9.2
12	16×21×10D	13.7×24.9×12.2	0.2472	5.9032	≥100uH	≥12
13	26×32×5	23.6×35×7.4	0.1125	9.106	≥15uH	≥7.4

Current transformer with nanocrystalline core

magnetic core structure features:

patent rights on composite high-permeability & transverse-magnetic material.

performance feature of the magnetic core:

- high anti-DC capability
- high accuracy covering 0.5 - 0.1, current 1.5 - 250A
- excellent high & low temperature
- high cost performance

applications:

energy meters, electricity meter, anti-direct current transformer on the smart meter, anti-direct current transformer on power measuring system

Nanocrystalline core for current transformer

Common dimension, applicable accuracy and DC range

NO.	Core size	Dimension	Accuracy	Applicable current range
1	φ14×19×8	φ12.3×22.4×10	0.2-0.1 level	30A
2	φ14×20×10	φ12.2×22.7×11.8	0.2-0.1 level	20-40A
3	φ14×21×8	φ12.5×22.65×9.5	0.2-0.1 level	60A
4	φ15×21×10	φ12.8×23.6×12.8	0.5-0.1 level	10-40A
5	φ15.5×24×8	φ13.7×26.3/×9.9	0.5-0.1 level	60A
6	φ16×21×10	φ13.6×23.6×12.5	0.2-0.1 level	60A
7	φ16×21×10(D)	φ13.6×24.8×12.1.	0.2-0.1 level	100A
8	φ16×23×10	φ14.0×25.0×13.0	0.5-0.1 level	40-60A
9	φ16×25×8	φ13.7×27.8×10.8	0.5 0.1 level	60A
10	φ17×22×10	φ15.3×24.4×12.3	0.5-0.1 level	60A
11	φ17×22×10A	φ15.3×24.4×12.3	0.5-0.1 level	30A
12	φ17×24×8	φ15.3×26×9.7	0.2-0.1 level	100A
13	φ17×25×10	φ15.3×27.8×13.1	0.2-0.1 level	100A
14	φ17×25×10A	φ15.6×28.0×12.8	0.5-0.1 level	100A
15	φ17×28×8	φ15.2×29.8×10.1	0.5-0.1 level	65A
16	φ17×28×8A	φ15.2×29.8×10.1	0.5-0.1 level	100A
17	φ18×24×10	φ15.8×26.6×12.8	0.5-0.1 level	60-100A
18	φ18×25×12	φ16.2×27.6×14.2	0.5-0.1 level	100A
19	φ18×28×15	φ16.0×30.2×17.6	0.5-0.1 level	100A
20	φ19×27×8	φ16.8×29.3×9.6	0.2-0.1 level	100A~120A
21	φ19×27×12	φ17.15×28.8×14	0.5-0.1 level	120A
22	φ19×28×10	φ17.1×30×12.4	0.2-0.1 level	100A
23	φ19×28×12	φ17.1×30.2×13.9	0.5-0.1 level	120A
24	φ20×30×8	φ18.1×32.6×10	0.2- 0.1level	120A
25	φ21×29×10	φ18.8×32.1×13.8	0.5-0.1 level	60-80A
26	φ21×29×10A	φ18.8×32.1×13.8	0.5-0.1 level	100A
27	φ23×33×15	φ21.2×.36.2×18.1	0.5-0.1 level	200A
28	φ22×32×8	φ20.5×34×10.2	0.2- 0.1level	120A
29	φ31×41×10	φ29.2×45×12.9	0.2-0.1 level	200A
30	φ48×60×15	φ46.0×64.0×19.5	0.5-0.1 level	200A
31	φ50×60×10	φ47.96×63.03×12.83	0.2-0.1 level	200A

Range of application

Feature: excellent appearance·tiny size·light weight·high accuracy·great consistency· damp proof & quake proof

Application on Meter:

Single-phase electronic meter

Electricity meter

Electricity meter

Three-phase fourwire electricity meter

Application on Motor Protection Monitoring:

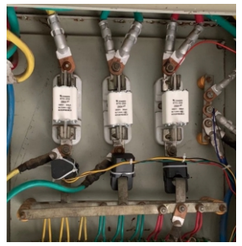
Electromotor protection controller

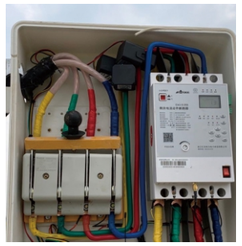
Electromotor protection controller

Application on Protective Relaying:

Protective relaying

Range of application





On-site installment picture for open-close current transformer

Application on data display

Digital multi-functional detection meter

Current differential protector

Digital alternating current meter

Digital alternating current meter

Application on zero-sequence current transformer

Sfere fire monitor

Electrical fire monitor

About Transformer

Definition of transformer and its function:

Transformer is equipment switching the voltage or current proportionally. It switches high voltage or high current to alternating voltage to standard small current, so as to realize the standardization and miniaturization of the measuring meter, protector and automatic control equipment. Meanwhile, the transformer is able to isolate the high-voltage system to guarantee the personal and equipment safety.

Terminology of transformer:

Current/voltage error value: the error value existing when the transformer is testing the current/voltage, is caused by the difference between the actual current/voltage and rated current/voltage.

Error Value: the error value is the difference between the secondary current/voltage and primary current/voltage. Direction of the vector is decided by "0" phase angle of ideal transformer. If the phasor of secondary current/voltage surpasses last current/voltage, the error value is positive. Vice versa, the error value is negative as stated as " ' ". Rated primary (input) current/voltage: is the primary current/voltage for the performance benchmark of transformer. Rated secondary (output) current/voltage: is the secondary current/voltage for the performance benchmark of transformer. Rated ratio between current

and voltage: is the ratio between ratio primary current/voltage and rated secondary current/voltage. Linearity range: is the range that the transformer can detect from minimum current/voltage to maximum current/voltage. Level of accuracy (accuracy degree): in terms of the given degree, the limiting value for the specified error value among current/voltage.

Rated load: is the circumscribed impedance of second coil, which determines the accuracy level of transformer. Rated dielectric level (dielectric strength level): is the compression strength between primary current/voltage and secondary current/voltage can sustain on transformer.

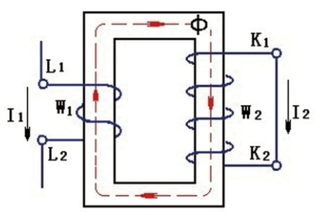
Transformer classification on principle:

Type	Definition
Current transformer	The equipment transforming the first current to second current based on electromagnetic induction principle.
Voltage transformer	The Equipment transforming the alternating high-voltage to the one which can be tested by instrument and relay based on electromagnetic induction principle.

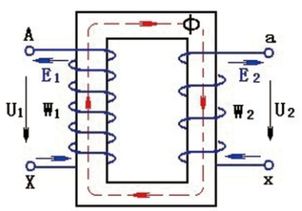
Typical magnetizing curve:

Type	Applicatlon
Metering	50/60Hz multi-functional electronic electricity meter, anti-theft meter, data display instrument.
Data display instrument transformer	Electrical quantity transducer, electricity monitoring, high-accuracy voltage/power/electricity testing equipment.
Open-close current transformer	Testing and protection of high-mobility, or confined space, or uninterrupted power electricity. It should be installed and used with continuous electricity.
Transformer for relay protection	Relay protection for electricity system and fault filter, testing for current, voltage, energy monitoring etc.
Current transformer for motor	Electronic electricity testing, lighting devices, air-compressor, air-conditioning system, electricity power management.
Zero-sequence current transformer	Current/voltage testing, fire-proof, electricity leakage system, small-current grounding system, construction fire monitoring system

Electrical Schematic

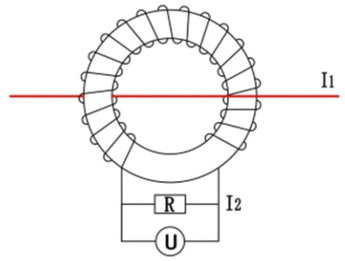


Current transformer



Voltage transformer

Circuit in use and production instruction for various transformers:
Current transformer: metering transformer, data display transformer, open-close transformer



I1 in picture above stands for primary input current, I2 for secondary current, R for load resistance, U for output voltage.

According to ampere's law: I1*N1 = I2*N2, comes the value of secondary current. According to Ohm's law: U=I*R, comes the output voltage value.

Remarks: the values of current and voltage in the circuit are alternating effective value.

The determination of maximum effective voltage: V max is basically determined by the peak AD value in the circuit. V max equals to peak voltage/2 for bipolar AD. For unipolar AD, V max equals to peak voltage/2.

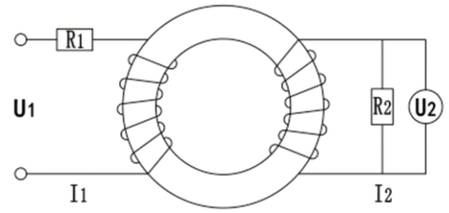
For example, for ±5 VAD, the maximum effective voltage for transformer V max = 5V/√2 = 3.53V

For 0 – 3.3V AD, the maximum effective voltage for transformer V max = 5V/2√2 = 1.16V

About R (resistance): R = V max/ (Im a/2000)

I picks the maximum input current.

For instance, maximum input current Im a = 10A, maximum output voltage V max=3.53V, R = 3.53/(10/2000) = 706Ω



The U1 in picture above stands for primary input voltage, R1 for current-limiting resistance, I1 for primary loop current, U2 for secondary output voltage, R2 load resistance, I2 for secondary current.

Remark: the values of current and voltage are effective in the circuit. Input current-limiting R1 is determined by: R1 = U1/I1 (the difference between internal coil resistance and current-limiting resistance is over hundred times, which can be ignored.)

If the rated input voltage ≤ 100V, the current normally picks I = 2mA; if the input voltage ≥220V, the current normally picks 1 mA ≤ I ≤ 2 mA, so as to reduce the power of resistance.

For example:

U1=100V, I1 = 2 mA

R1 = U1/I1 = 50KΩ;

U1=220V, I1 =1.1mA,

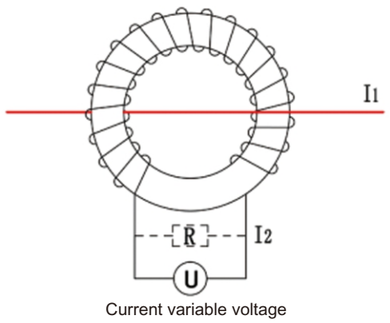
R1= U1/I1 = 110KΩ

In order to increase the reliability, the current-limiting resistance is normally set 4 times more than its rated power as well as metal film with high temperature coefficient rate (≤25 ppm).

The value of output voltage U2 is calculated based on Ohm's law U= I*R.

The type and load resistance can be determined by the ratio of the transformer and the value of the voltage when selecting the transformer. The selected load resistance should be lower than the rated load resistance of the product. Otherwise the linearity range of the transformer cannot meet the standard. If the output voltage of the transformer cannot meet the sampling demand, the sample should be selected after the output voltage is amplified.

Transformer for relay protection:



Current variable voltage

Input should be current whilst output should be voltage when the transformer is in use. Dielectric strength between first and second coil should be ≥3KV. Therefore, the load resistance of the transformer is installed inside the transformer, so as to export voltage signal. The external leading wire is put in circuit with client side.

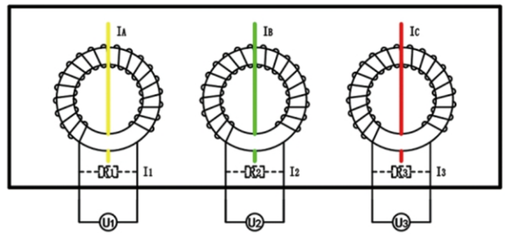
According to ampere's law: I1*N1 = I2*N2, comes the value of secondary current. According to Ohm's law: U=I*R, comes the output voltage value.

For example:

BCT6A/3.53V, states that the rated input current is 5A, whilst output voltage 3.53V. The number of first turns inside the transformer is 6Ts, second turns 1530Ts, load resistance 150Ω.

Results in: 6A*6Ts/1500Ts*150Ω = 3.53V

Electronic protection transformer:



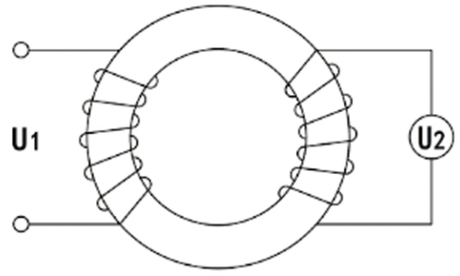
The electronic protection transformer is the premise to test three-phase current according to the demand of onsite usage. The starting current is large. Therefore the temporal range of the transformer is 10 times of rate input current.

IA, IB and IC stand for A B C phase of the three-phase current in the picture above. R1, R2 and R3 stand for the sampling resistance of three transformers respectively. According to Ohm's law: U=I*R, comes the output voltage value.

The load resistance should be put in parallel with the output end in each coil in the course of transformer manufacturing due to the sampling voltage onsite. Thus, the output of the transformer will be voltage.

Remarks: the values of current and voltage in the circuit are alternating effective value.

Voltage alternating transformer:



The transformer should be input with high voltage, and output with small voltage due to the onsite request. The dielectric strength between first and second coil should be ≥3KV, so as to enable the client side to collect the voltage signal. The external leading wire of the transformer should be connected in parallel with the client circuit.

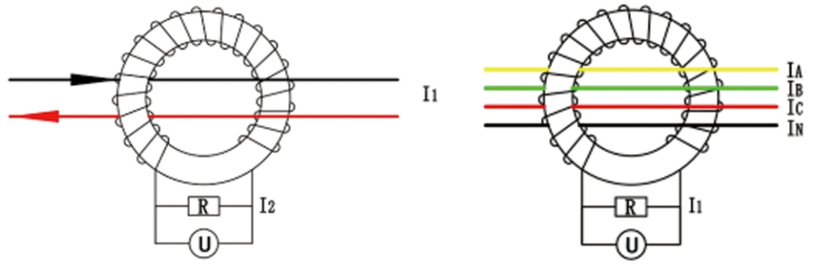
According to the transformer variable voltage principle, U1/U2 = N1/N2

For example:

BPT120V/3.53V, states that the rated input voltage is 120V, whilst output voltage 3.53V. The number of first turns inside the transformer is 5500Ts, second turns 162Ts. Results in: 120V/3.53v = 5500Ts/162Ts

Remarks: the values of current and voltage in the circuit are alternating effective value.

Zero-sequence current transformer:



The transformer generates the induced current to drive the subsequent circuit, when leakage or electricity shock happens, so as to break the circuit.

The current and the voltage are parameter vectors, which contains value and direction whilst the intersection angles exist among current and voltage. When the circuit runs normally, the vector sum goes to zero. There is no signal secondary output from the transformer. The black line stands for zero curves, while the red one stands for fire wire in picture 1. Both wires cross the transformer simultaneously. The current sum of zero curve and fire wire is zero when the circuit runs normally. Therefore there is no output current from the transformer. In picture 2, the yellow, green, red and black line stand for A-, B- and C- phase of three-phase current and zero curve respectively. When these four lines cross the transformer simultaneously, the current sum of them goes to zero in the course of normal operation. Moreover, there is no secondary output current from the transformer. When the zero curves and fire wire in picture 1, or one of the A-, B-, C- phase goes wrong, the transformer induces secondary current, which leads to danger in the circuit. Based on Ohm's law U=I*R, the transformer generates voltage signal to end terminal, resulting in power-off in the end circuit.

Common Mode Chokes

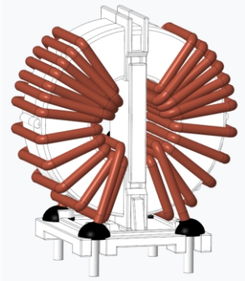
三友继电器 SANYOU RELAYS

Feature

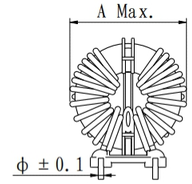
- Rate current: 0.1A- 40A or customizable
- Inductance value: 10μH~30mH or customizable
- Applied frequency:1KHz / 10KHz / 100KHz or customizable

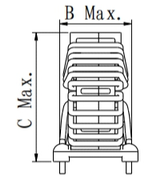
Applications:

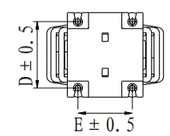
- Home appliances
- Power electronics
- Telecommunications
- Atuomotive electronics
- Charging piles, photovoltaic
- Industrial control
- Lighting equipment
- Audio equipment

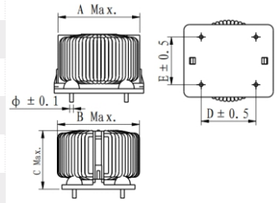


	Model	Current (A)	Inductance (mH)	Resistance (mΩ)	A	B	C	D	E	φ	Dimension (mm)
Nanocrystalline common mode inductance series	SY25TN	10	≤15	≤30	36	26	38	22	18	1.2	
		12	≤12	≤30						1.4	
		14	≤8	≤20						1.5	
		16	≤6	≤20						1.6	
	SY32TN	16	≤16	≤30	44	22	45	22	18	1.6	
		18	≤13	≤25						1.7	
		22	≤10	≤20						1.8	
		25	≤6	≤15						2.0	
	SY36TN	16	≤23	≤30	45	30	50	22	18	1.6	
		18	≤18	≤25						1.7	
		22	≤14	≤20						1.8	
		25	≤8	≤15						2.0	
	SY40TN	18	≤25	≤30	55	28	54	22	18	1.7	
		22	≤20	≤25						1.8	
		25	≤16	≤20						2.0	
		35	≤7	≤15						2.5	
Ferrite common mode inductance series	SY25TF	8	≤6.5	≤30	36	26	38	22	18	1.1	
		10	≤5	≤30						1.2	
		12	≤2.5	≤20						1.4	
	SY32TF	10	≤5	≤30	44	22	45	22	18	1.2	
		12	≤3	≤25						1.4	
	SY36TF	8	≤10	≤50	45	27	50	22	18	1.1	
		10	≤8	≤30						1.2	
		12	≤4	≤25						1.4	
	SY40TF	18	≤5	≤30	55	28	54	22	18	1.7	
		22	≤4	≤25						1.8	
	SY29TF	6	≤15	≤50	40	38	30	24	14	1.0	
		8	≤12	≤50						1.1	
		10	≤8	≤30						1.2	
	SY31TF	10	≤7.5	≤30	44	42	33	24.5	21.5	1.2	
		12	≤6	≤30						1.4	
		14	≤4	≤30						1.5	









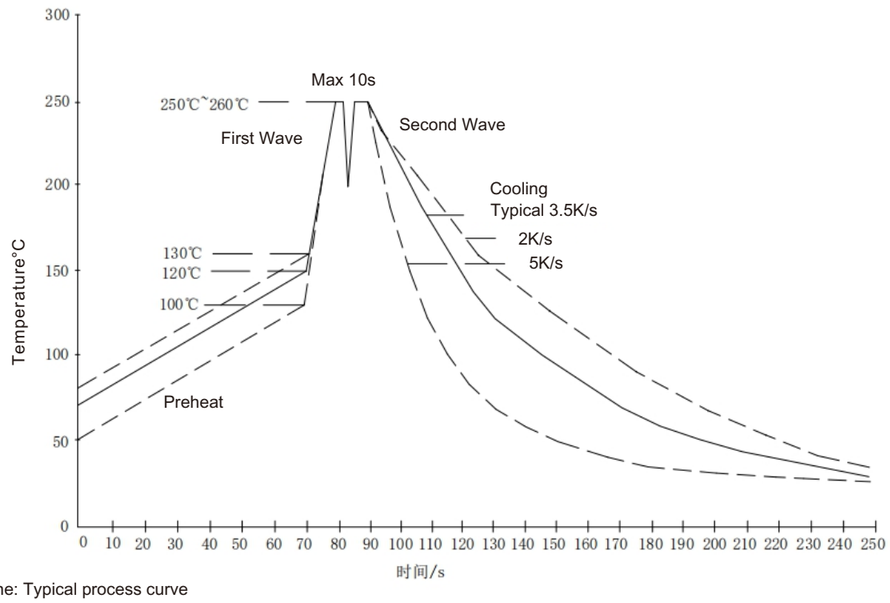
Differential-mode inductance series

Model	Current (A)	Inductance (mH)	Resistance (mΩ)	A	B	C	D	E	φ	Dimension (mm)
SY13TF	2	0.11min.	≤80	16	11	18.5	8	/	0.65	Refer to page 18

Note: Specifications and dimensions are subject to change without notice.
For detailed product information, please refer to the relevant product specifications.

Precautions for using Common Mode Inductors

1. Please do not use a common mode inductor that has fallen to the ground, as the inductor may have been damaged
2. The operating temperature of the inductor cannot exceed the maximum temperature specified in the specification
3. If the client product needs to be coated with Conformal coating adhesive or sealed, please confirm whether the coated or sealed material will react with the enameled wire and plastic, resulting in the decline of the insulation performance of the enameled wire or the acceleration of plastic aging.
4. The current carrying capacity of the inductor is related to the ambient temperature and heat dissipation conditions. The rated current in the specification is measured under Natural convection conditions, so whether the product meets the requirements can only be confirmed by the customer.
5. The common mode inductors in this catalog are high-voltage devices. Please confirm that the distance between the inductance and the metal shell meets the safety standards during use
6. The storage time of the product is 12 months. If it exceeds 12 months, oxidation may occur on the pin pins, which may cause difficulty in soldering for customers. Please use our product within 12 months. If it exceeds 12 months, please contact Sanyou for handling
7. Recommended lead-free wave soldering time and temperature curve (according to IEC 61760-1 2006)



Full line: Typical process curve
Dotted line: Max. soldering temp.

Wave Soldering Profile

Corporate Vision: Establishing first-class quality, striving for the best in the world and building Sanyou a century-old enterprise

Corporate Mission: We create value for customers, investors and society, whilst furnishing employees with better remuneration and benefits.

Corporate Mission: We create value for customers, investors and society, whilst furnishing employees with better remuneration and benefits.

Corporate Spirit: keep forging on and never give in; pursuit for reform and never ceasing

Management policy: Customer-centered, starting with customer demand and ending up with customer satisfaction

Code of Conduct: Dedication, Honesty, Unity and Innovation

Quality policy: Increase the quality, decrease the cost, exceed the expectation.

Contact information for each sales area

Contact information for each sales area

Sanyou Sales & Marketing Headquarter

- Add：No.27, Center 2 Road, Puxinhu, Tangxia Town, Dongguan, Guangdong,
- P.C：523719
- Miss KANG ：15016948238
- Tel：+86-769-85911599
- Fax：+86-769-85914553
- WEB：http://www.sanyourelay.com
- E-mail：symmc01@sanyourelay.com

Sanyou Shenzhen Sales Branch

- Mr. ZHONG ：13640942170
- Tel：+86-755-83638699
- Fax：+86-769-85914553
- E-mail：zhongrong@sanyourelay.com
- Add：602-17, building 1, meinian International Plaza, west of Nanhai Avenue, Taohuayuan community, merchants street, Nanshan District, Shenzhen

Sanyou Hangzhou Sales Branch

- Mr. SONG ：18167135118
- E-mail：dgasc01@sanyourelay.com
- Add：Room 910-2, No. 135, Jichang Road, Jianggan District, Hangzhou, Zhejiang Province

Sanyou Wuhan Area

- Mr. ZHENG ：17507137787
- Fax：+86-769-85914553
- E-mail：sales01-sywh@sanyourelay.com

Sanyou Chongqing Area

- Mr. XIA ：15922883700
- Fax：+86-769-85914553
- E-mail：sales02-sycq@sanyouraley.com

Sanyou Zhengzhou Area

- Mr. YANG ：15591808663
- Fax：+86-769-85914553
- E-mail：sales-syym@sanyourelay.com

Sanyou Hefei Area

- Mr. HU ：18856955356
- Fax：+86-769-85914553
- E-mail：sales01-syhf@sanyourelay.com

Sales Branch

Domestic: Shenzhen, Dongguan, Shanghai, Chongqing, Wuhan, Hangzhou, Hefei, Zhengzhou, Qingdao, Tianjin and other cities

Overseas Branch

Abroad: North America, Europe, South Korea, Mexico, Poland, India and other countries and regions

Qingxian Zeming Nanjing Branch

- For The Domestic Market ： Miss WU 13776672750
- TEL：025-52611744
- E-mail：zmmmg01@zmlxdz.com
- For Export：Miss ZHANG 18114924976
- TEL：025-52601870
- E-Mail: zmmms09@zmlxdz.com
- Add：Jimeisi, No. 30, tulip Road, Yuhuatai District, Nanjing, Jiangsu Province Building B 208

Mingguang sanyou power technology shanghai branch

- For The Domestic Market ： Mr. LIU 13801740981
- TEL：+86-021-57863939
- E-mail：sales-zml@china-wanjia.com
- For Export：Mr. LIU 13801740981
- TEL：86-21-57864080
- E-mail：sales-david@china-wanjia.com
- Add：Room 1301, building 1, Lane 599, Guangfulin Road, Songjiang District, Shanghai

Sanyou automotive, HVDC, photovoltaic

- Mr. CHEN ：18721967106
- Fax：+86-769-85914553
- E-mail：sales-syne01@sanyourelay.com
- Add：No. 10, Hepan Road, Tangxia Town, Dongguan City, Guangdong Province

Sanyou Shanghai Branch

- Mr. CHEN ：18721967106
- Fax：+86-769-85914553
- E-mail：sales-syne01@sanyourelay.com
- Add：Room 1505, building 1, Lane 599, Guangfulin Road, Songjiang District, Shanghai

Sanyou Overseas Area

- Mr. TANG ：15121180320
- Fax：+86-769-85914553
- E-mail：jason.tang@sanyourelay.com

Sanyou Electrical Appliances (NA) 2011 Inc

- Add: 2140-11980 Hammersmith Way, Richmond, V7A 0A4, BC, Canada.
- Tel: 604-276-8648, Christine LIU
- Fax: 604-276-8649
- E-mail: christine@sanyourelay.ca
- Website: http://www.sanyourelay.ca

Sanyou Electrical Appliances GmbH

- Add: Gutenbergstraße 5, 65830 Kriftel, Germany
- Tel: +49 6192 3076025, Mr. KELLER
- Cell: +49 176 23510831
- Fax:+49 6192 3076026
- E-mail: sales.support@sanyourelay.eu
- Website: http://www.sanyourelay.eu

Sanyou Korea Co., Ltd.

- Add: #1110, STXW-TOWER, 615-3, Guro-dong, Guro-gu Seoul,152-865 Korea.
- Tel: +82-2-6124-3939, Mr. Choi
- Fax: +82-2-6124-3930
- E-mail: jschoi@sanyoukorea.co.kr
- Website：http://www.sanyoukorea.co.kr

Sanyou India Market

- Add: 102, SRS Tower Sector 31 GT Road Faridabad -121003, Haryana India
- Tel: +0091-9899990875 Hariom Sagar
- E-mail:India@sanyourelay.com