

BROCHURE

SCR Power Controllers



Precision Control, Save Energy, Efficiency



Since
2005

NIETZ is one Leading Manufacturer of industrial automation products, with more than millions units sold worldwide, established **2005** Shanghai, China. We are committed to building long-lasting and successful business relations with our partners, has gained good reputation and deep influence.

We aim to provide the best quality, unmatched reliability and low price in our services and our products. We aim to reduce your costs, streamline manufacturing, to improve productivity.

The products of **NIETZ** are Variable Frequency Inverters, AC Servo System, Soft Starter, Planetary Gearboxes and Complete Device. The products NIETZ are technological advanced products and it has quite wide product range and already used widely in various applications such as textile machine, air compressor, hoist, packing machine, printing machine, electronic machine and other industries, which exported to over 40 countries and regions such as Europe, South America, Southeast Asia, Middle East and so on.

NIETZ always aims to be the professional driving solution provider and your mutual-benefit partner. «



Reception



Production Workshop



SMT Lines



Assembly Workshop



Testing Lines

AC Inverters
Servo System
Timer
Soft Starters
PID Controllers
Solid State Relay
Temperature transmitters
Counter
SCR Power Controller
Power supply
Signal Lights
Temperature Controllers

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SCR-53

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04



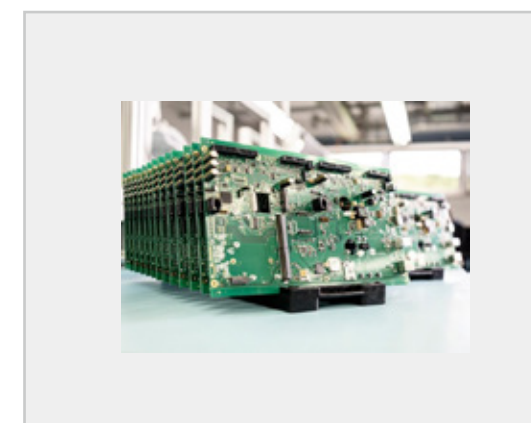
SCR-61
SCR-63

05
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SCR-21
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Options & Accessories

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SCR-51 Single phase

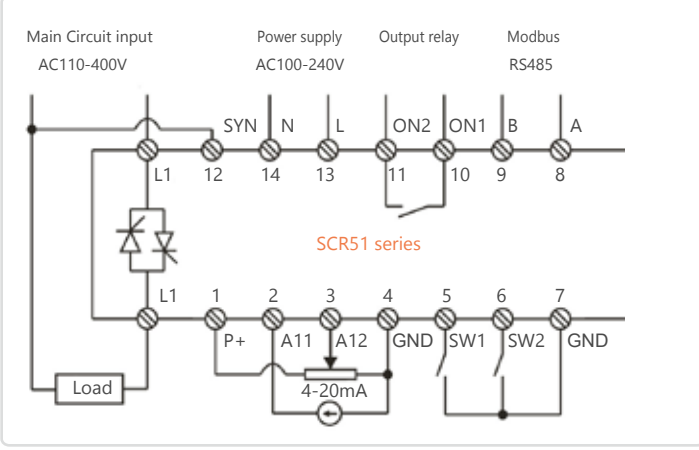
Universal purpose SCR Power Controller

- ✓ Built-in high-performance, low-power microprocessor
- ✓ Compact structure; Easier system integration
- ✓ Current range 25 ~ 150 Amps
- ✓ LED display, convenient for parameter setting and display
- ✓ Aluminum radiator provides performance cooling feature
- ✓ Modbus-RTU, Profibus-DP, Modbus TCP / IP various communication

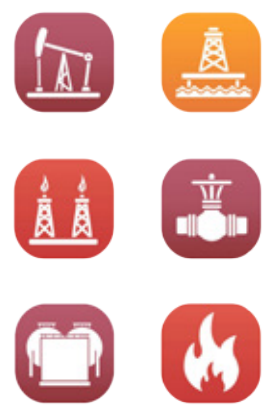


THYRISTOR POWER CONTROLLER

Wiring terminal	
①	5V DC potentiometer power supply
②	0-20 / 4-20mA
③	0-5V / 0-10V DC interior resistance ≥10K
⑤	Programmable digital input 1. Close Start / Disconnect Stop
⑥	Programmable digital input 2. Default Switches set signal A11 and A12; Disconnect - A11 valid connect - A12 valid
④ ⑦	Ground
⑧ ⑨	RS485 communication interface
⑩ ⑪	Programmable relay; 3A 250V AC / 3A 35V DC
⑫	Sync. signal
⑬ ⑭	Power supply AC 100 - 240V

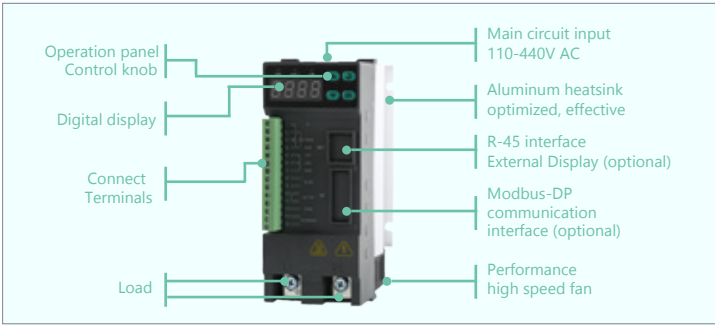


Typical Applications



- Furnace and ovens
- Autoclaves
- Kilns
- Heat treatment
- Glass industry
- Semiconductor
- Power generation
- Oil and gas
- HVAC
- Textiles
- Plastics
- Packaging
- Petrochemical
- Dryers and curing

Models	025	040	075	100	150
Rated current	25A	40A	75A	100A	150A
Power supply	Main circuit 110-440V AC; Power supply 100-240V AC; 45-65 Hz				
Heat dissipation mode	Self-cooling		Air-cooling		
Protection function	Phase loss, Overcurrent, Overheat, Overload, Load disconnection				
Ports	0-5V/0-10V/0-20mA/4-20mA analog input, 2-ways digital input, one-way digital output, Modbus RTU				
Extension module	Temperature control, Profibus-DP, Modbus TCP/IP, TRMS true RMS				
Operation mode	Phase angle and zero-crossing				
Control mode	Constant voltage, constant current, constant power, open loop				
Load type	Resistive, inductive, specially tailored to the load				
Accuracy	± 1 %				



Dimension, mm	D		W		W1	
	Model	D	W	H	W1	H1
	25-40A	128	80	160	73	120
	75-150A	128	80	160	73	100

Products Codes

SCR-51		01	02
Model		SCR-51 Single phase Power regulator	
01 Max. Current, Amps		02 Optional configuration	
025 25 amps		T Temperature control module	
040 40 amps		R TRMS true effective value	
150 150 amps		C Modbus TCP / IP	
		P Profibus-DP	

SCR-53 Three phase

Universal purpose SCR Power Controller

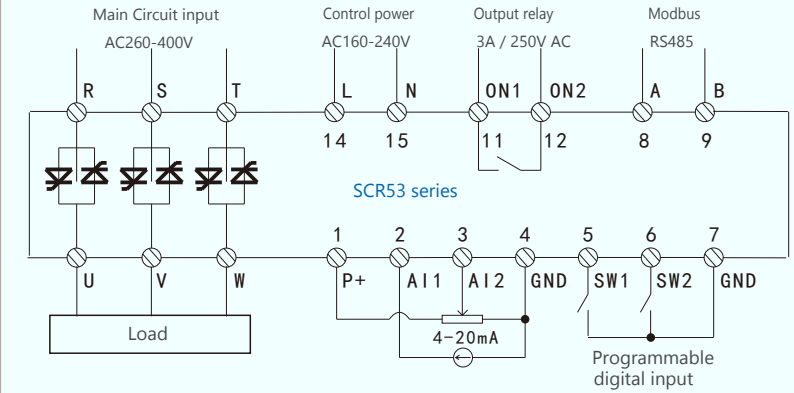
- ✓ Built-in high-performance, low-power microprocessor
- ✓ Compact structure; Easier system integration
- ✓ Current range 25 ~ 350 Amps
- ✓ External LED display - easy to set parameter and monitoring
- ✓ Performance protection fuction provides efficient safe
- ✓ Communication output models available Modbus-RTU RS485
- ✓ Most efficient cooling system, saving mount space



THYRISTOR POWER CONTROLLER

Models	025	050	075	100	120	150	200	250	320
Rated current	25A	50A	75A	100A	120A	150A	200A	250A	320A
Power supply	Main circuit 260-440V AC; Power supply of control board 160-240V AC; Frequency 45-65 Hz								
Heat dissipation mode	Air-cooling								
Protection function	Phase loss, Overcurrent, Overheat, Overload, Load disconnection								
Ports	0-5V/0-10V/0-20mA/4-20mA analog input, 2-ways digital input, one-way digital output, Modbus RTU								
Optional configuration	Temperature control module, external display device								
Operation mode	Phase angle and zero-crossing								
Control mode	Constant voltage, constant current, constant power, open loop								
Load type	Resistive, inductive, specially tailored to the load								
Accuracy / Resolution	± 1 % / ± 0.025 %								

Wiring diagram

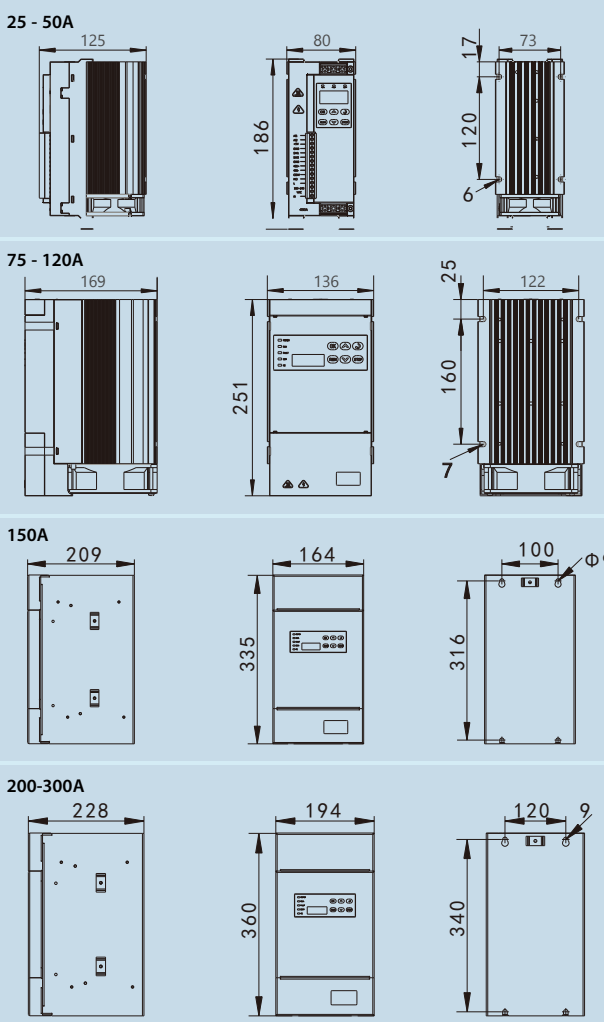


	Description
SW1	Start and Stop signal
SW2	Switching between A11 and A12 Setting signal is valid when closed A12; Setting signal is valid when disconnected A11

Product Codes

SCR-53		01	02
Model		SCR-53 Three phase Power regulator	
01 Max. Current, Amps		02 Optional configuration	
025 25 amps		T Temperature control module	
050 50 amps		ED External LED display device	
150 150 amps			

Dimesion, mm



SCR-61 Single Phase

Advanced SCR Power Controller

- ✓ High speed and high accuracy by digital control using high speed CPU
- ✓ Current range 25 ~ 800 Amps
- ✓ Silicone rubber knob, LED display. Convenience operation
- ✓ Slim structure, iron shell. Save space and performance cooling
- ✓ Various extended options provide more function and possibility
- ✓ Modbus-RTU, Profibus-DP, Modbus TCP / IP various communication

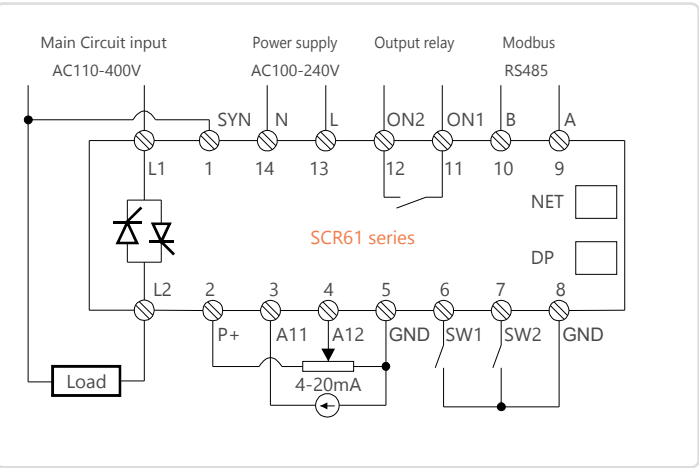


PROFI[®]
BUS Modbus TCP/RTU

THYRISTOR POWER CONTROLLER

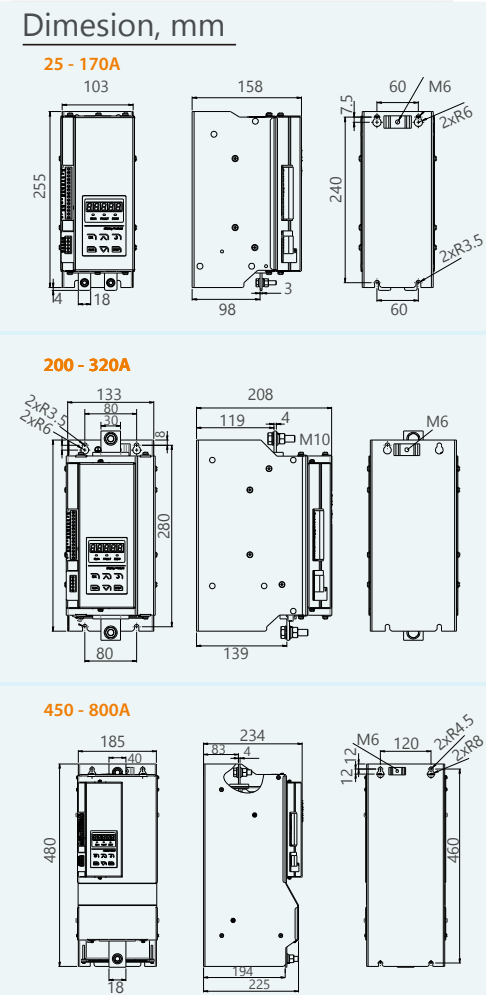
Wiring terminal	
②	5V DC potentiometer power supply
③	0-20 / 4-20mA
④	0-5V / 0-10V DC interior resistance ≥10K
⑥	Programmable digital input 1. Close Start / Disconnect Stop
⑦	Programmable digital input 2. Default Switches 0-5V and 4-20mA Disconnect - 4-20mA Connect - 0-5 / 0-10V
⑤ ⑧	Ground
⑨ ⑩	RS485 communication interface
⑪ ⑫	Programmable relay; 3A 250V AC / 3A 35V DC
①	Sync. signal
⑬ ⑭	Power supply AC 220 V ± 10 %

Models	025	050	075	100	170	270	320	450	600	800								
Rated current	25A	50A	75A	100A	170A	270A	320A	450A	600A	800A								
Power supply	Main circuit 110-440V AC; Power supply 198-240V AC; 45-65 Hz																	
Heat dissipation mode	Self-cooling		Air-cooling															
Protection function	Phase loss, Overcurrent, Overheat, Overload, Load disconnection, etc																	
Ports	0-5V/0-10V/0-20mA/4-20mA analog input, 2-ways digital input, one-way digital output, Modbus RTU																	
Extension module	Feedback, Profibus-DP, Modbus TCP/IP, TRMS true RMS, load monitoring, etc																	
Operation mode	Phase angle and zero-crossing																	
Control mode	Constant voltage, constant current, constant power, open loop																	
Load type	Resistive, inductive, customize to the load																	
Accuracy	± 1 %																	



Products Codes

SCR-61		01	02
Model			
SCR-61		Single phase Power regulator	
01 Max. Current, Amps			
025		25 amps	
040		40 amps	
.....			
0800		800 amps	
02 Optional configuration			
ED		External display	
EF		External feedback	
R		TRMS true effective value	
C		Modbus TCP / IP	
P		Profibus-DP	
DA		Analog output	



NIETZ

SCR-63 Three Phase

Advanced SCR Power Controller

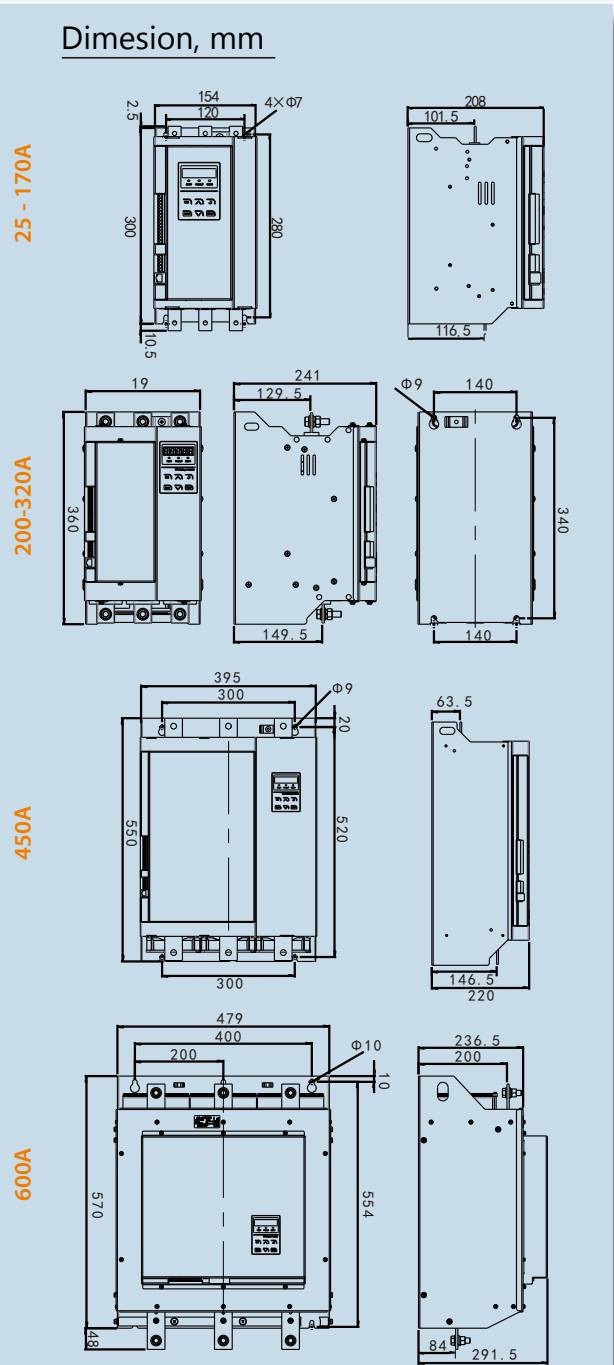
- ✓ Built-in high quality chips for stable performance and high speed operation
- ✓ Current range 25 ~ 1200 Amps
- ✓ 4 ways analog output; external feedback
- ✓ Silicone rubber knob, LED display. Convenience operation
- ✓ Slim structure, iron shell. Save space and performance cooling
- ✓ Various extended options provide more function and possibility
- ✓ Modbus-RTU, Profibus-DP, Modbus TCP / IP various communication



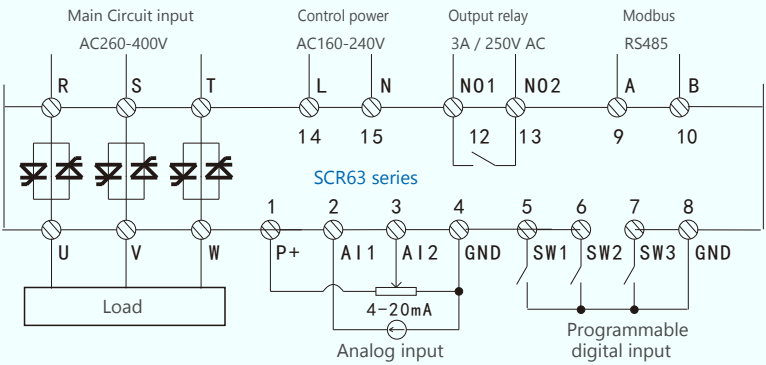
Modbus TCP/RTU PROFIBUS[®]

THYRISTOR POWER CONTROLLER

Models	025	045	075	100	170	270	320	450	600	800
Rated current	25A	45A	75A	100A	170A	270A	320A	450A	600A	800A
Power supply	Main circuit 260-440V AC; Power supply 160-240V AC; 45-65 Hz									
Heat dissipation mode	Self-cooling			Air-cooling						
Protection function	Phase loss, Overcurrent, Overheat, Overload, Load disconnection, etc									
Ports	0-5V/0-10V/0-20mA/4-20mA analog input, 3-ways digital input, one-way digital output, Modbus RTU									
Extension module	Feedback, Profibus-DP, Modbus TCP/IP, TRMS true RMS, load monitoring, etc									
Operation mode	Phase angle and zero-cross									
Control mode	Constant voltage, constant current, constant power, open loop									
Load type	Resistive, inductive, customize to the load									
Accuracy / Resolution	± 1 % / ± 0.025 %									



Wiring diagram



Description	
SW1	Start and Stop signal
SW2	Switching between A11 and A12 Demanded signal is valid when connected A12; Its valid when disconnected A11

Products Codes

SCR-63		01	02
Model			
SCR-63		Three phase Power regulator	
01 Max. Current, Amps			
025		25 amps	
040		40 amps	
.....			
1200		1200 amps	
02 Optional configuration			
ED		External display	
EF		External feedback	
R		TRMS true effective value	
C		Modbus TCP / IP	
P		Profibus-DP	
DA		Analog output	

NIETZ

DSR-20 Single / Three phase

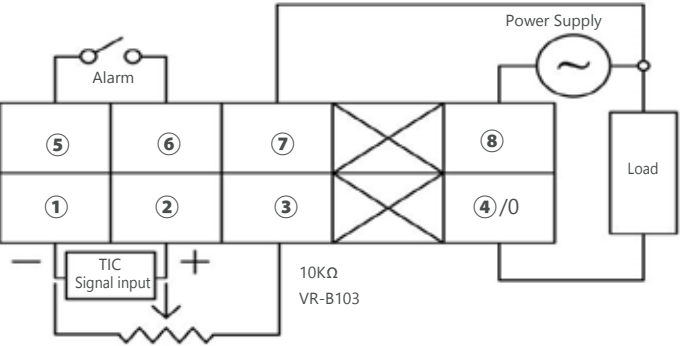
Compact Digital SCR Power Controller

- ✓ Power frequency 50/60 Hz auto-detect
- ✓ Zero cross control or phase angle control selectable
- ✓ High and low output limit settable
- ✓ Soft start or kick start time settable
- ✓ Multi-input type; Auto or manual output is selectable
- ✓ Multi automatic diagnostic alarm function



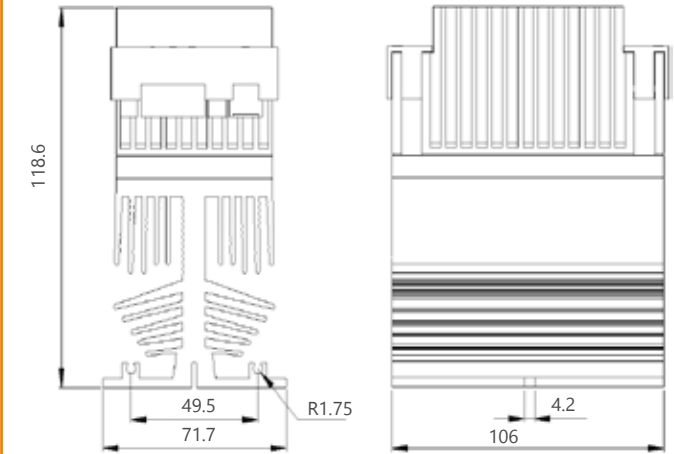
THYRISTOR POWER CONTROLLER

Wiring terminal		
① ② ③	Input method	0-5V / 1-5V / 0-10V / 2-10V / 0-20mA / 4-20mA or VR-10kΩ selectable
④ ⑧	Live wire	8 / L, 4 / 0
⑦	Neutral wire	7 / N
⑤ ⑥	Alarm	Relay 3A 250V AC



Models	DSR-21-20	DSR-23-20
Rated current	20	20
Operating Voltage	220V AC ± 10 %	380V AC ± 10 %
Min. block voltage	600V AC	800V AC
Input mode	0-5V / 1-5V / 0-10V / 2-10V / 0-20mA / 4-20mA or VR-10kΩ selectable	
Protection function	Overcurrent protection (hardware overcurrent check), radiator overheating, fuse burnt	
Control mode	zero cross control or phase angle control selectable	
Output control	0-100 %	
Input resolution	0.5 %	
Output lower limit	0-100 % (L.000 - L.100) settable	
Output upper limit	0-199 % (H.000 - H.199) settable	
Soft start	1-199 % (t.001 - t.199) settable	
Operating environment	86-106 kPa; 0-50 °C; 45-48 % RH	
Housing material	ABS; Heatsink is aluminum	

Dimension, mm



Typical Application

- The DSR-20 Thyristor Power Controller can be used together with temperature controllers with temperature controllers with Continuous PID output in order to achieve high accuracy of temperature control. It can also be used alone to achieve accurate voltage control.
- The DSR-20 can be used widely in high accuracy temperature control of ceramic, metallurgy, heat treatment, chemical engineering , electric stove and kilns etc



COMPACT, LIGHT AND LOW COST

They help you save money, reduce equipment downtime, maximise cabinet space with space saving design, provide clean electricity.

ACESSORIES Complete Solution

More Flexible, Solution and Possibility

- ✓ Solid State Relay
- ✓ Temperature Sensor
- ✓ Temperature Controllers
- ✓ Timer, Counter
- ✓ Industrial Signal Lights
- ✓ Power Supply



SCCESSORIES



Temperature Controllers

- Universal propurse, multi-input
- SSR, relay, 4-20mA output mode
- Modbus RS-485 communication



Solid Stae Relay

- Provides Solid-state Relay for enormous range of applications.
- Socket / Plug-in, Integrated with heatsink



Timer, Counter

- Electronics types
- Digital display types
- Intelligent types



Temperatures Sensors

- Thermocouples
- Resistance Temperature Detectors



Power Supply

- AC/DC Power Supplies
- DIN-Rail Power Supplies



Signal Lights

- Ball top waring
- Tower lights
- Wall mounted, lights with RS485

MAIN TECHNICAL DATA

For essential functionality SCR Power Controllers offer you simplicity, efficiency and high performance.

Features		1PH		3PH	
		SCR-51	SCR-61	SCR-53	SCR-63
Power supply, Current					
Control Voltage	110-260V AC	✓			✓
Main power voltage (MPW) *	110-440V AC	✓			—
	260-440V AC	—			✓
Output frequency	45-65 Hz	✓			✓
Rated output voltage	0-98% main power voltage	✓			✓
Rated output current range		0-150A	0-800A	0-350A	0-1200A
Operation and Control methoud					
Operation method	Continuous	✓			✓
Control method	V/I/P/Any	✓			✓
Firing method	Zero cross, phase angle	✓			✓
I/O method					
Analog input	0-5V;0-10V;0-20mA;4-20mA	2 ways			2 ways
Digital input		2 ways		2 ways	3 ways
Digital output		✓			✓
Communication					
RS485	Modbus-RTU	✓			✓
Run and Stop					
Soft Start and Down		✓			✓
Indication					
Digital display		✓			✓
Protection function					
Lack of phase		✓			✓
Overcurrent		✓			✓
Overheat		✓			✓
Fuse rupture		✓			✓

* 690V customized is available.

EXTENSION MODULE SHEET

For complex load management, SCR Controllers provide advanced communication functionality and a range of valuable optional features.

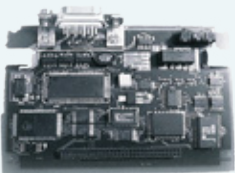
Extended module	Order code guide	1PH		3PH	
		SCR-51	SCR-61	SCR-53	SCR-63
External display	ED	✓		✓	
Temperature controller	T	✓		✓	—
Online power distribution	PM	—		✓	
True RMS	R	✓		—	✓
External feedback	EF	✓		—	✓
Input and Output					
Analog output	DA	—	✓	—	✓
Digital output	DO	—	✓	—	✓
Digital input	DI	—	✓	—	✓
Communication					
Modbus TCP/IP	C	✓		—	✓
Profibus	P	✓		—	✓

OPTIONS

Expansion Modules

More Flexible, Function and Possibility

- ✓ External Display
- ✓ Modbus TCP/IP
- ✓ Profibus-DP Module
- ✓ Internal Temperature Controllers
- ✓ True RMS Module
- ✓ Load voltage feedback, load current feedback



Profibus-DP

Communication module, stable EN50170 standard

- Max. communication speed 12M, auto-adapted baud rate.
- 20 expansion slots internal



Modbus-TCP/IP

Communication module

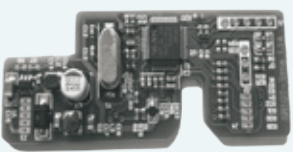
- Modbus-TCP/IP communication protocol supported.
- Communication speed 10/100Mbit



Feedback module

Voltage-current feedback control

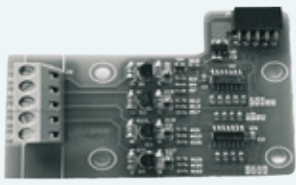
- External current feedback 0-5A
- External voltage feedback



True RMS

True-RMS module give an accurate measurement of both sinusoidal and nonsinusoidal waveforms.

- Conducive to the control of load heat
- Control stalibity of loadtheat, not affected by grid fluctuations, etc.



Analog Output

Various ways ananlog output

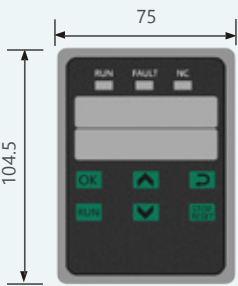
- 1-4 ways ananlog output supported
- 4-20mA, 0-20mA, 0-5V, 0-10V signals



Digital I/O

Various ways digital input and output

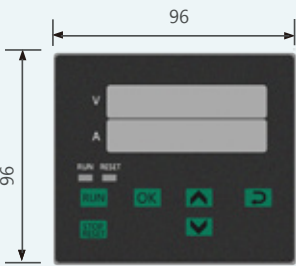
- 1-4 ways didigital input
- 2 ways digital output



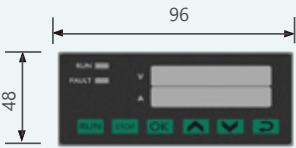
ED1 Keypad

ED1 Keypad with Bracket
Hole to mount 75 x 104.5mm
67 x 96.5mm

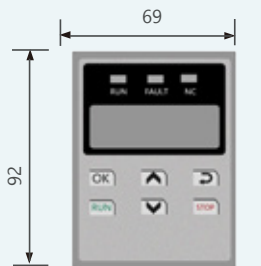
ED2 Keypad with Bracket
Hole to mount 96 x 96mm
67 x 96.5mm



ED2 Keypad



ED3 Keypad



ED4 Keypad

ED3 Keypad with Bracket
Hole to mount 69 x 92mm
64.5 x 87.5mm

ED4 Keypad with Bracket
Hole to mount 96 x 48mm
93 x 45mm

FLEXIBILITY FOR ELECTRICITY SOLUTION

We are confident that we can exceed your power control expectations and improve process control.

For additional information on products visit us at www.nietz.cn

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NIETZ

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