SR Series Programmable Logic Controller

Features

1. Real-time clock function
2. Password protection function
3. Removable panel and cost-saving
4. 30 kinds of function blocks, the total amount of function blocks reaches128
5. More compact, more powerful, flexible connection /EHC
6. Provide 64 Human-Machine Interfaces, and the parameters can be displayed and modified directly
7. I/O can be extended freely. The optimum configuration can be 50DI, 32DO, 8AI
8. UL/CE Approval
9. Support analog input
10. Support MODBUS RTU
11. Wireless remote control function
12. Furnished with simulation software
13. Provide one 1KHZ high-speed input port (this type needs to be customized)
14. Telephone remote control, automatic dialing alarm and voice broadcasting function
15. Retain the current data after a power failure and resume operation at the break point (this type needs to be customized

Standard Specification

SR-12 Main Machine Model					
	**Type**	**SR-12MRAC**	**SR-12MRDC**	**SR-12MTDC**	**SR-12MGDC**
	Power Supply	AC-110-220V	DC12-24V	DC12-24V	DC12-24V
	Input	8 point AC input	8 point DC input (6 point analog)	8 point DC input (6 point analog)	8 point DC input (6 point analog)
	Output	4 point relay output	4 point relay output	4 point transistor (equivalent NPN)	4 point transistor (equivalent PNP)
SR-22 Main Machine Model					
	**Type**	**SR-22MRAC**	**SR-22MRDC**	**SR-22MTDC**	**SR-22MGDC**
	Power Supply	AC-110-220V	DC12-24V	DC12-24V	DC12-24V
	Input	14 point AC input	14 point DC input (8 point analog)	14 point DC input (8 point analog)	14 point DC input (8 point analog)
	Output	8 point relay output	8 point relay output	8 point transistor (equivalent NPN) output	8 point transistor (equivalent PNP) output
SR-20 Extension Model					
	**Type**	**SR-20ERA**	**SR-20ERD**	**SR-20ETD**	**SR20-EGD**
	Power Supply	AC-110-220V	DC12-24V	DC12-24V	DC12-24V
	Input	12 Point AC input	12 Point DC input	12 Point DC input	12 Point DC input
	Output	8 point relay output	8 point relay output	8 point Transistor (equivalent NPN) output	8 point Transistor (equivalent PNP) output

Telephone Voice Model				
	**Type**	**SR-VPA**	**SR-VPD**	**SR-AUD**
	Power Supply	AC-110-220V	DC12-24V	---
	Brief Description	Dial alarm call automatically, telephone remote control and voice broadcast.		

Modbus Model			
	**Type**	**SR-MCA**	**SR-MCD**
	Power Supply	AC110-220V	DC12-24V
	Brief Description	Supply several kinds of communication port, including RS232 and RS485; the communication between SR PLC and human-machine interface through MODBUS RTU protocol can be implemented; max. 256 SR PLCs interconnected can be supported.	

Switching Power Supply			
	**Type**	**Output Voltage**	**Output Current**
	MTP-0506AS	DC5V	6A
	MTP-1203AS	DC12V	3A
	MTP-2401AS	DC24V	1.5A
	MTP-0510AL	DC12V	10A
	MTP-1206AL	DC12V	6A
	MTP-2403AL	DC12V	3A
	MTP-48AS	DC48V	0.75A
	MTP-48AL	DC48V	1.5A

Remote Control Model			
	**Type**	**SR-RCA**	**SR-RCD**
	Power Supply	AC110V-220V	DC12-24V
	Brief Description	Remote receiving module provides 6 remote control input points.	
	**SR-TC**		
	Power Supply	The transmitter uses two units of "AA" battery	
	Brief Description	Remote receiver module provides 6 remote control input points.	
	**SR-EANT**		
	Power Supply	---	
	Brief Description	SR-RCA/RCD lengthened connecting antenna.	

SH-EHC		SR-CP side-plug type /SR-DCP direct-plug type	
	Connection set of SR-HMI Remotely connect SR main machine with SR-HMI		The communication cable between SR and PC, realizes the program, analogue and slow monitor function of the PC over SR.
SR-HMI/SR-WRT		**SR-DUSB/SR-DUSB**	
	SR-HMI: Monitoring panel SR-WRT: Programming Panel		The communication cable between SR and PC USB

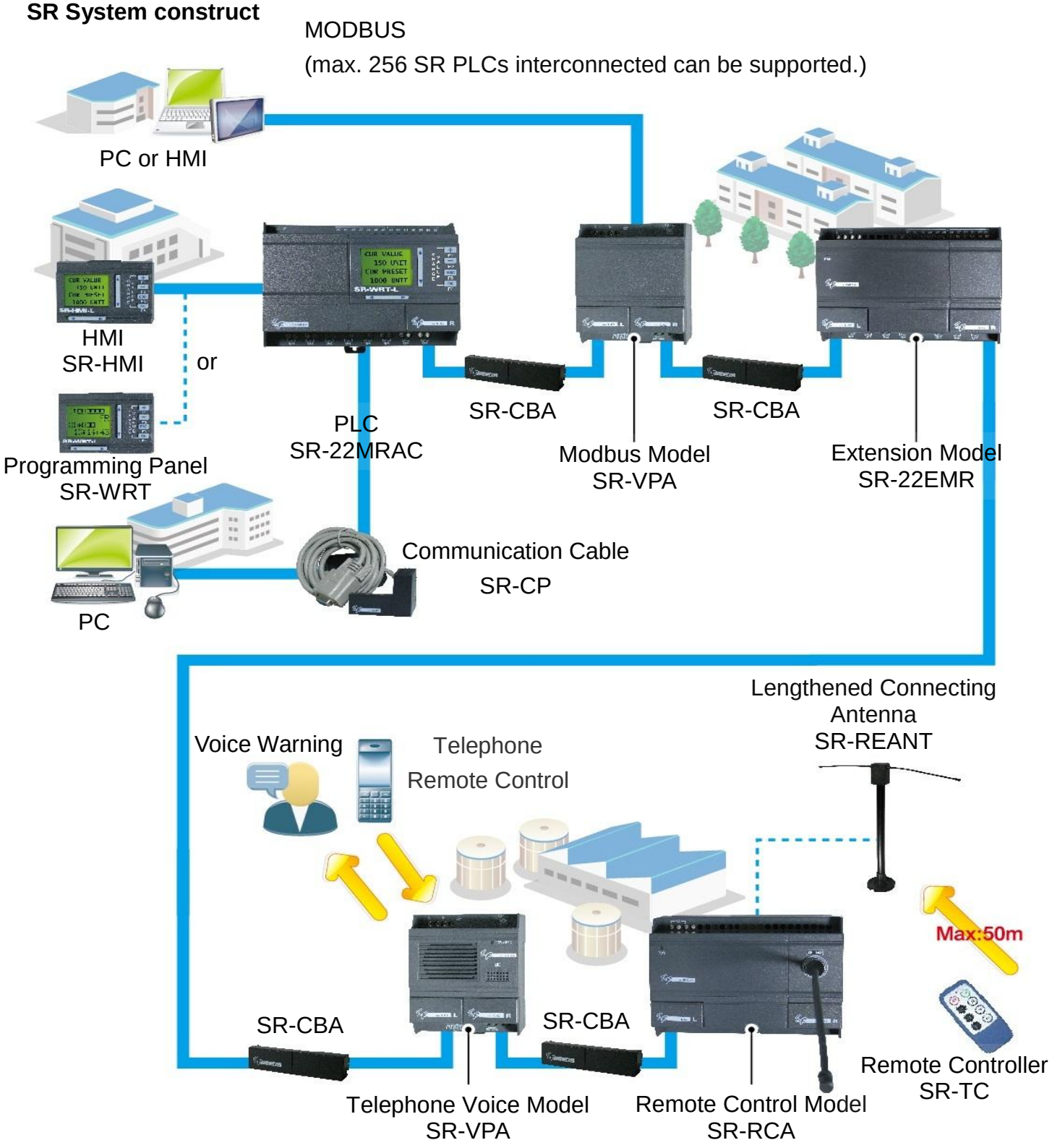
Common Specification				
Item \ Type	SR-12MRAC SR-22MRAC SR-20ERA	SR-12MRDC SR-22MRDC SR-20ERD	SR-12MTDC SR-22MTDC SR-20ETD	SR-12MGDC SR-22MGDC SR-20EGD
Power Supply				
Rated Voltage	AC100-240V	DC12-24V	DC12-24V	DC12-24V
Allowable Range	AC85-260V	DC10-28V	DC10-28V	DC10-28V
Input Section				
Digital Input	8(A0~A5,B4~B5)/ 14(A0~A7,B0~B5)/ 12(X0~X7,Y0~Y3)	8(A0~A5,B4~B5)/ 14(A0~A7,B0~B5)/ 12(X0~X7,Y0~Y3)	8(A0~A5,B4~B5)/ 14(A0~A7,B0~B5)/ 12(X0~X7,Y0~Y3)	8(A0~A5,B4~B5)/ 14(A0~A7,B0~B5)/ 12(X0~X7,Y0~Y3)
Analog Input	No	6(A0~A5)/ 8(A0~A7)/No	6(A0~A5)/ 8(A0~A7)/No	6(A0~A5)/ 8(A0~A7)/No
Voltage for Signal 0	AC0-40V	DC0-5V	DC0-5V	DC0-5V
Voltage for Signal 1	AC85-240V	DC10-24V	DC10-24V	DC10-24V
Analog Voltage	No	DC0-10V/ DC0-10V/No	DC0-10V/ DC0-10V/No	DC0-10V/ DC0-10V/No
Delay Time for 0 to 1	50ms	50ms	50ms	50ms
Delay Time for 1 to 0	50ms	50ms	50ms	50ms
Output Section				
Output Type	Relay	Relay	Transistor (NPN)	Transistor (PNP)
Output Current	Resistor 10A Induction 2A	Resistor 10A Induction 2A	≤2A	≤2A

Switch Frequency					
Mechanism	10Hz	**Resistance Load**	2Hz	**Sensitive Load**	0.5Hz
Environment Data					
Operating Temperature	0℃~55℃	**Protection Type**	IP20	**25℃ Clock Buffer**	80h
Storage Temperature	-40℃~70℃	**Interference Regulation**	EN55011 (B Class)	**RTC Accuracy**	Max ±5s/day
Transportation Temperature	-40℃~70℃	**Insulation Intensity**	IEC1131		
Others					
Clock buffer memory at 25℃	80h	**Emission on line**	EN55011(B)	**Function block No**	128
RTC accuracy	Max±5s/day	**The main frequency range**	47-63Hz	**Program storage capacity**	64K
Protection	IP20	**Installation**	Use standard 35mm DIN rail or screw for installation		

Telephone Voice Module	
Index	**Standard**
Automatically Receive	CCITT-DTMF
Automatically Dial	CCITT-DTMF
Broadcast	Totally 100 messages (Each message is limited to 15 seconds and the total time is about 8 minutes.)
Remote Receiving Module	
Item	Parameter
Power Consumption	1.5W
Operation Frequency	VHF(310~340MHz) UHF(415~460MHz)
Remote control distance	≦70M
Remote Transmitter	
Item	Parameter
Power Consumption	40mW
Operation Frequency	VHF(310~340MHz) UHF(415~460MHz)
Operation Voltage	DC 3V (two units of AA)
Transmitting Power	3dbm

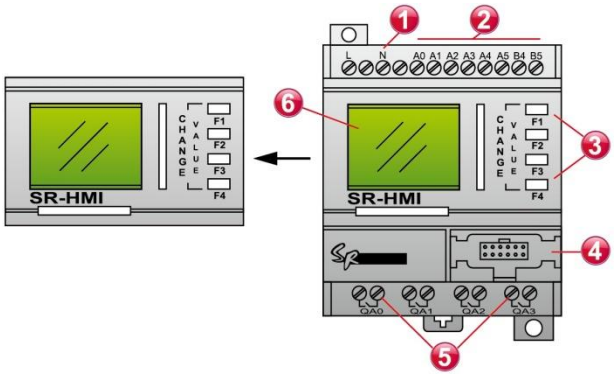
System Construct

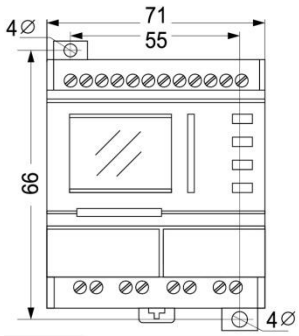
SR System construct

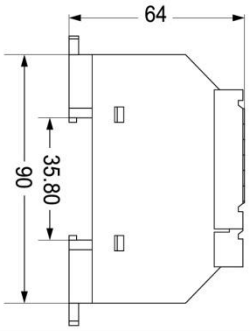


12 Points Basic Module

1. Power supply
2. Input terminal
3. Small human-machine interface (SR-HMI) or programming panel (SR-WRT)
4. Communication interface
5. Output terminal (relay type or transistor type)
6. LCD display

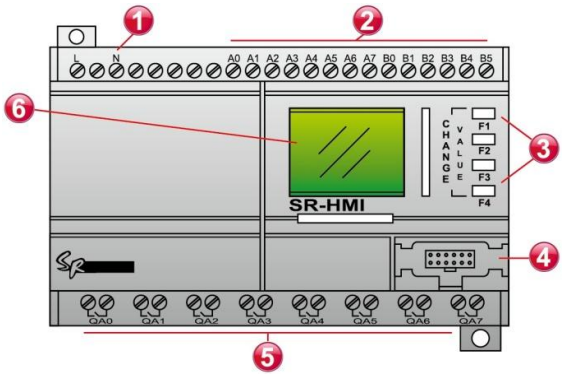


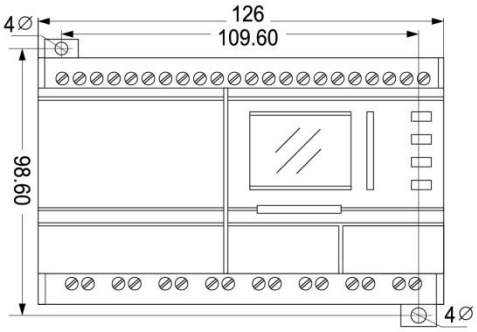


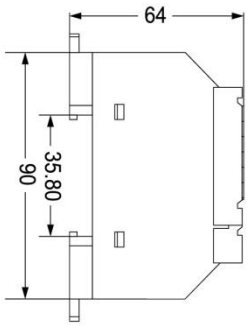


22 Points Basic Module

1. Power supply (AC 100V-240V, or DC12V-24V.)
2. Input terminal
3. Small human-machine interface (SR-HMI) or Programming panel (SR-WRT)
4. Communication interface
5. Output terminal (relay type or transistor type)
6. LCD display

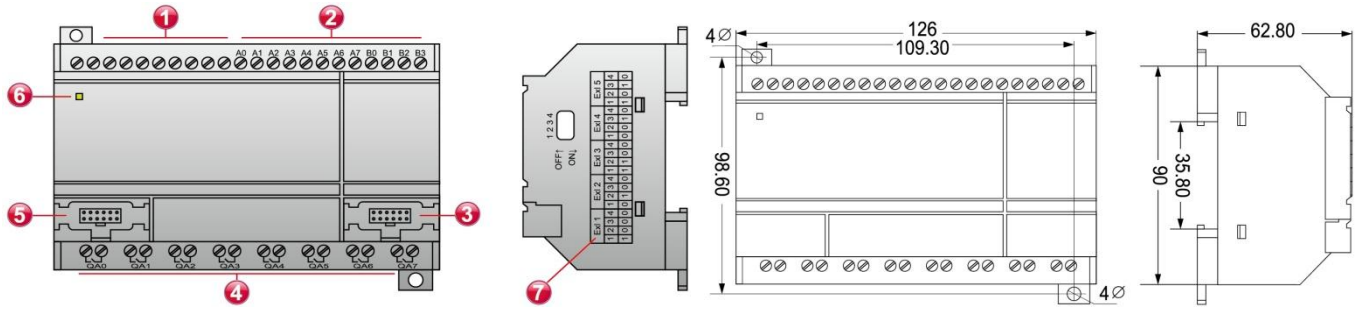






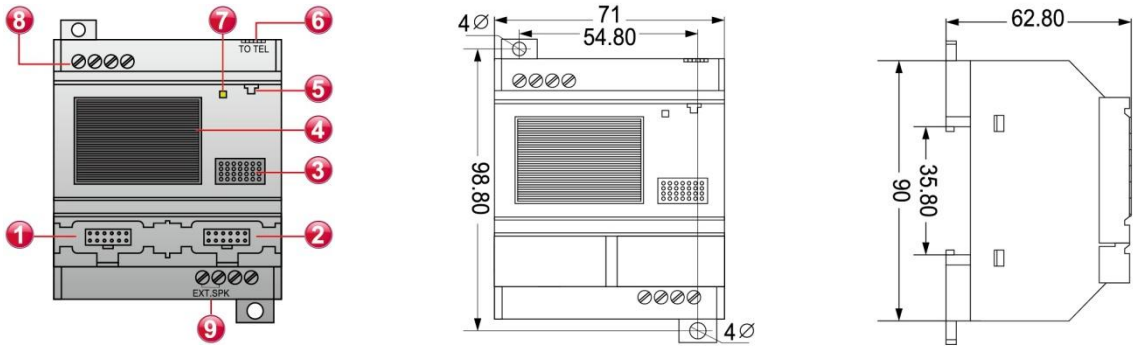
IO Extension Module

1. Power supply terminals (AC100-240V or DC12-24V)
2. Input terminals
3. Communication port to extension module , voice module or receiver module
4. Output terminals
5. Communication port to SR main machine
6. Power indicator light
7. Addresses List of Extension Module



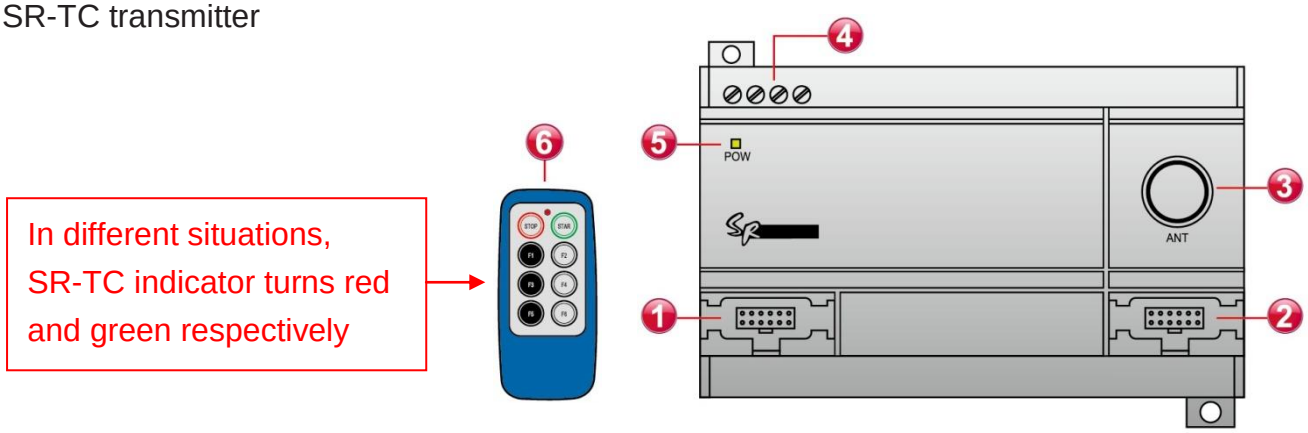
Telephone Voice Module

1. The interface of connecting the voice module with SR host machine extension and remote control
2. The interface of connecting the voice module with communication cable
3. MIC (It can be used for off-line recording or recording from the panel of the main machine.)
4. SPK (Broadcasting interface of speaker internally installed in the voice module)
5. Audio input port for on-line recording of the voice module (it is connected with the audio output port of PC.)
6. Socket of telephone crystal plug (connects to telephone wire directly)
7. Indicator of the power and recording of the voice module (It will be green when the voice module is powered; it will be red when the voice module starts recording. The users have to start recording after the indicator is on, and stop recording when the indicator is off, or the voice can
8. Power supply (AC 100V-240V, or DC12V-24V)
9. The Audio output port (to connect with user s active speaker)

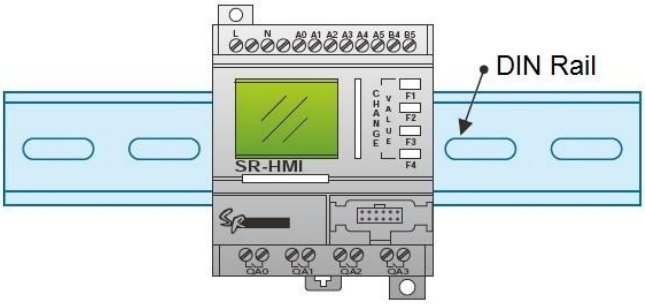


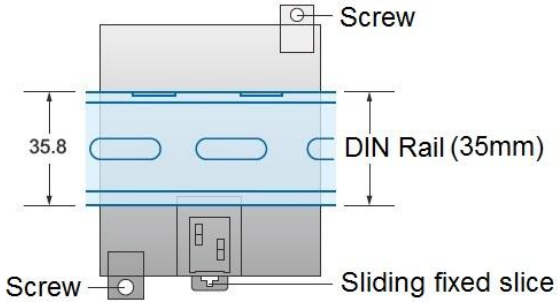
Remote Control Module

1. The interface of connecting with host machine (main machine/voice/extension)
2. The interface of communicating with PC or next subordinate machine
3. The antenna of remote receiver
4. Power supply of remote control module (AC 110V/AC 220V, or DC12V-24V)
5. Power indicator
6. SR-TC transmitter



Installation Method

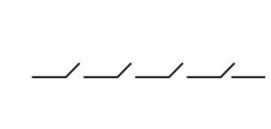
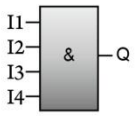




SR Software and Function

The simple Super CAD software provides a user-friendly operation interface. It can easily edit function diagram through choosing and pulling relevant function and connection, and can transform and examine the program on PC through the off-line simulation function. There are 8 basic function blocks, 14 special function blocks, 8 I/O points and voice function blocks. Every function block can implements the specific control function independently. When several function blocks are linked together in a specific way, the complicated program can be created quickly and easily.

8 Basic Functions

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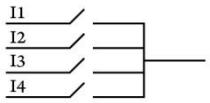
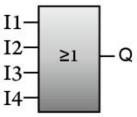

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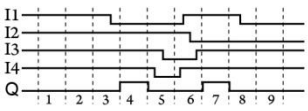
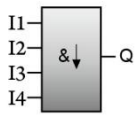
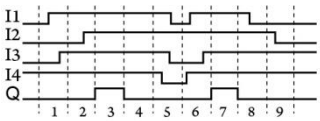
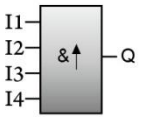




NAND





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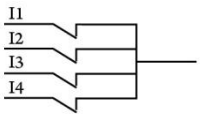
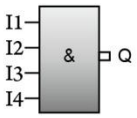

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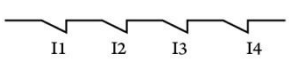

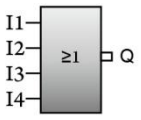

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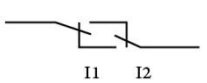

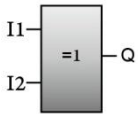

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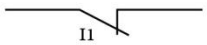
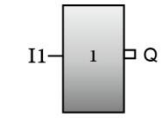
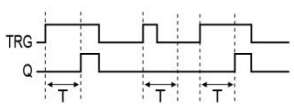
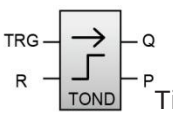




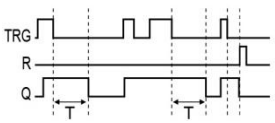
NOT

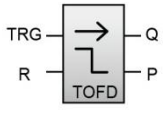
14 Special Functions



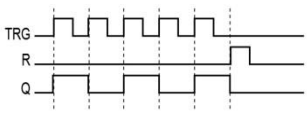


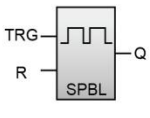
Time-delay ON



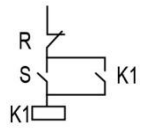


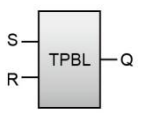
Time-delay OFF



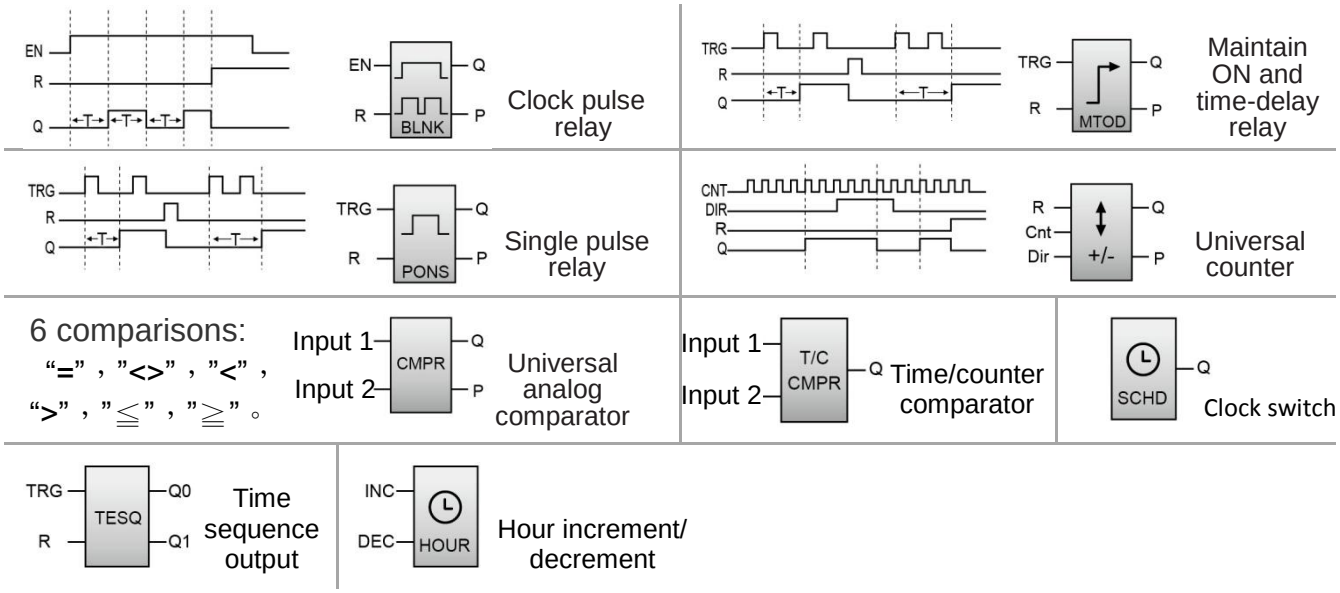


Pulse relay

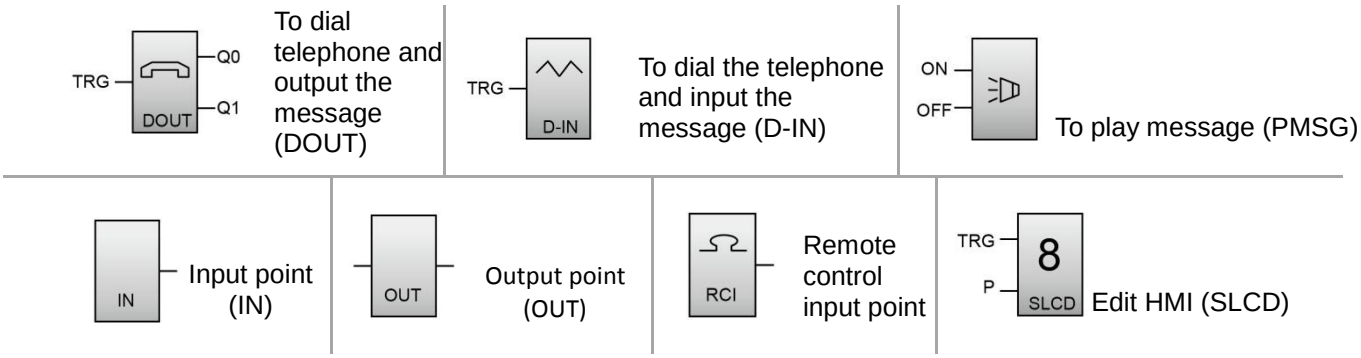


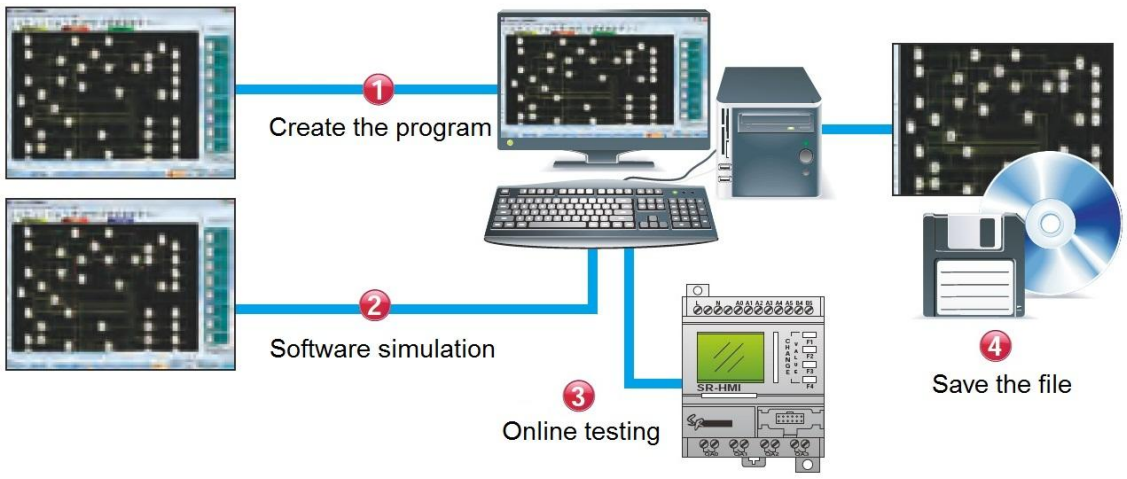


RS relay



8 I/O Functions





Uses SR program software Super CAD

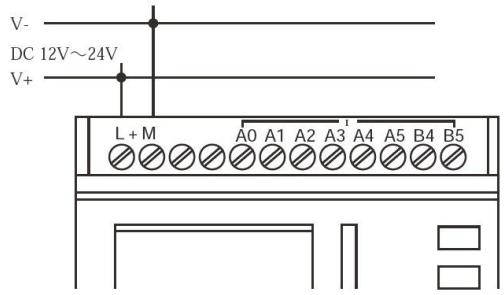
1. Simulates the whole process through the whole function of SR
2. Simulates the analog signal through the AB value
3. Simulates the clock date
4. Shows the current value and set value through SR display
5. Shows the status of parameter value and current value through SR display
6. Switch the ON/OFF line status of SR PLC and software Super CAD under the RUN/STOP mode

Hardware Connections

Connect to the power supply

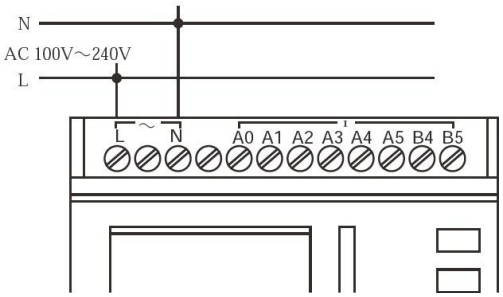
AC Power Supply

Wiring diagram



DC Type

Wiring diagram

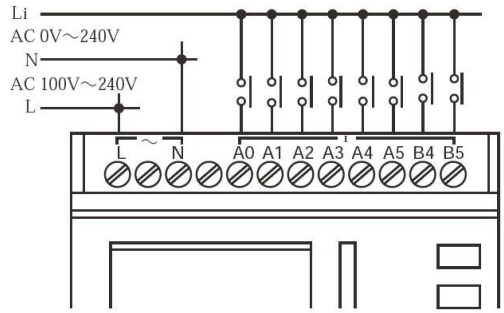


Input Connections

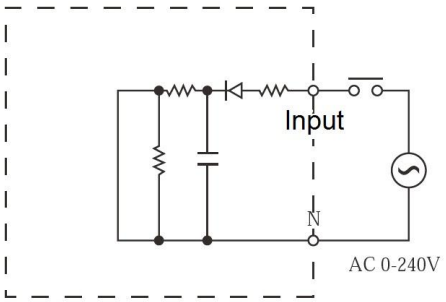
Digital input connections (AC type)

AC Type

Wiring diagram

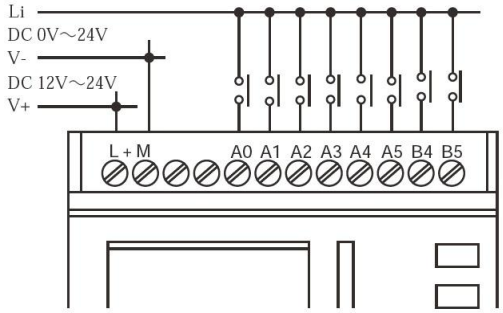


Equivalent diagram

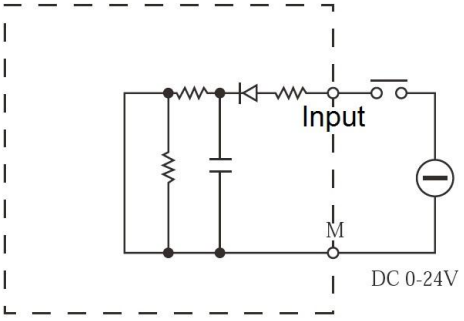


DC Type

Wiring diagram

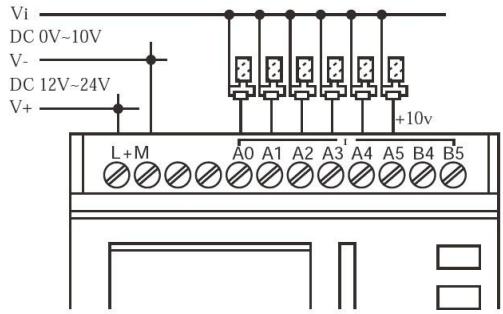


Equivalent diagram

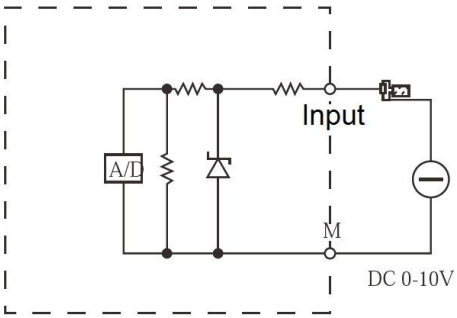


Analog input connections (Only for DC type, and the analog signal is DC0-10V. The minimum accuracy: 0.1)

Wiring diagram



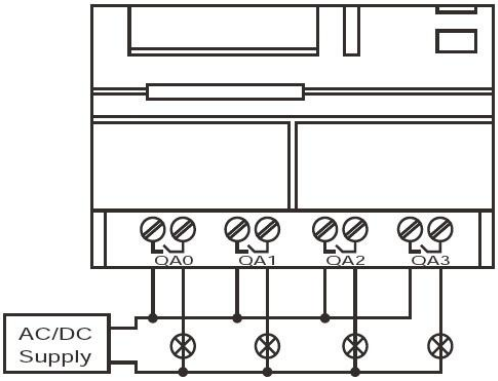
Equivalent diagram



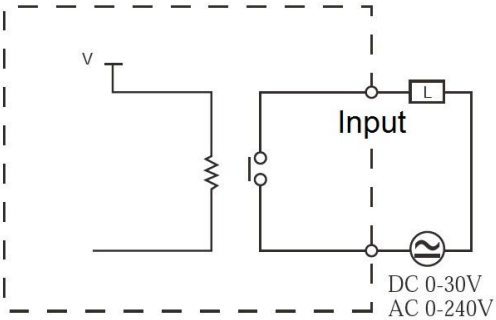
Output Connections

Relay output connections

Wiring diagram



Equivalent diagram

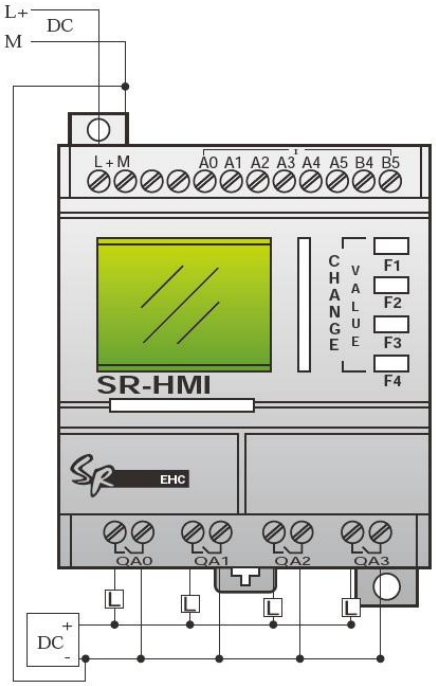


Various loads such as lamp, fluorescent tube, contactor etc., can be connected to the outputs of SR. The maximum supplied output current is: the resistive load: 10A, the inductive load: 2A.

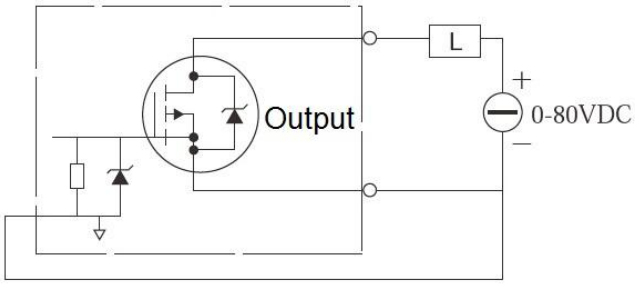
Transistor output connections

The transistor load connected with SR must have the following property: The maximum switching current should not exceed 2A; The transistor load includes two types: NPN and PNP.

NPN type transistor output



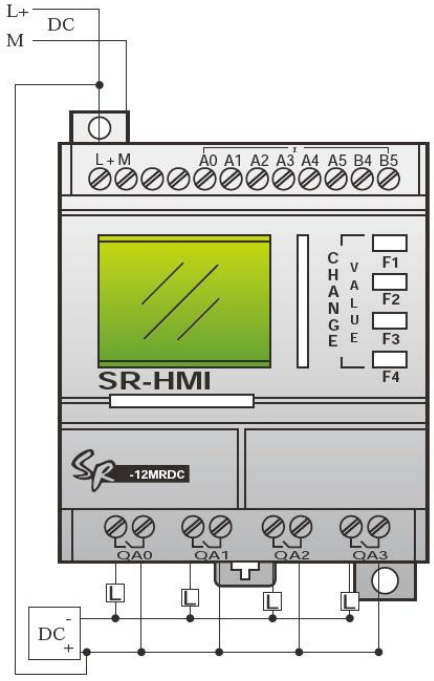
Equivalent diagram



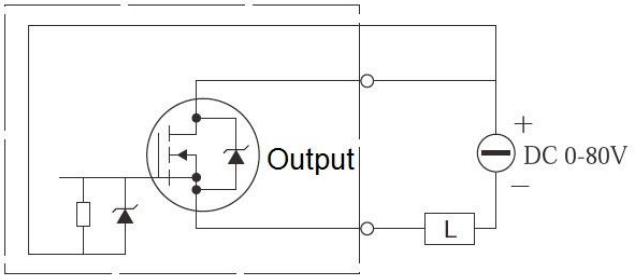
※The DC negative pole “-” of the load should be connected to “M” of SR power supply, and the load must be connected to the positive pole“+”of DC power supply

※The voltage of the load should not be more than DC80V

PNP type transistor output



Equivalent diagram



※The DC positive pole “+”of the load should be connected to “L+” of SR power supply, and the load must be connected to the negative pole“-”of DC power supply.

※The voltage of the load should not be more than DC80V

Application Examples

Auto-door control	Kinds of auto illumination
Alarming and signal bell system control	Fountain system
Guard against theft and alarm system	Plant watering
Bent-machine control	Monitor system control
Selection the speed by the intelligent pin button	Packing system
Displaying window	Control of the parking lots
Automation lighting control of the tunnel	Machine tool automation
Water disposal automation	Boiler automation
Street lamp control	Warming & ventilation system control
Neon light control	Electronic bell control in factories and schools
Persian blinds device control	Puddles control system
Dip-dye, heat and transmission control of textile	Lift control
Order control over the cable soling machine	Dynamo electric automation control
Agriculture irrigation automation control	Step walking switch control
Automation control of the washing machine	Refrigeration control of the refrigerator
Measure control of the liquid level	Air conditioner system control

Application program examples:

Irrigation of Greenhouse Plants

Watering for plant 1

The water level is always kept in the set range via the float switches for maximum and minimum value (IA0 and IA1);

Watering for plant 2

Via the time switch, the watering system is switched on for 4 minutes fromAM5:30 to AM5:34 and from PM8:30 to PM8:34.

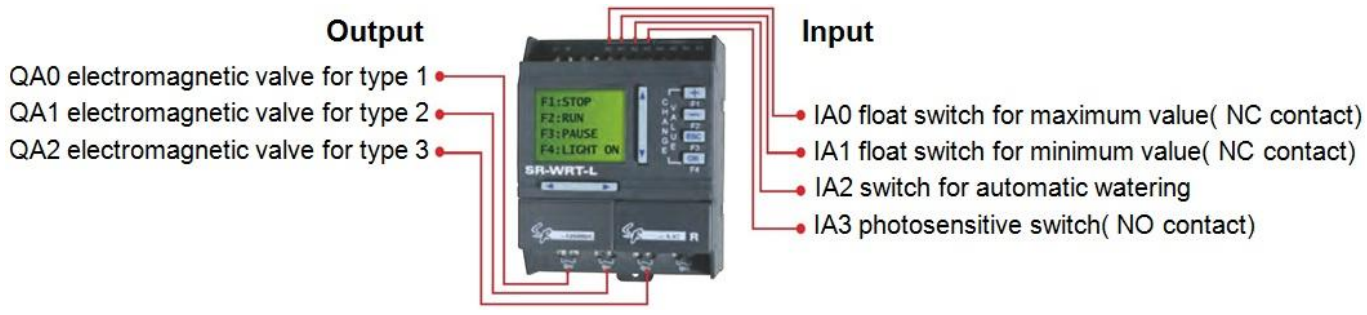
Watering for plant 3

Via the function of Current Impulse Relay, this plant is watered for 2 minutes every other evening when the photosensitive switch (IA2) responds.

Advantages and Specialties

The watering time can be changed in the morning and evening by your desired.

The lighting and ventilation in the greenhouse can also be controlled by using of SR in addition to watering plants.



Control system of shutter

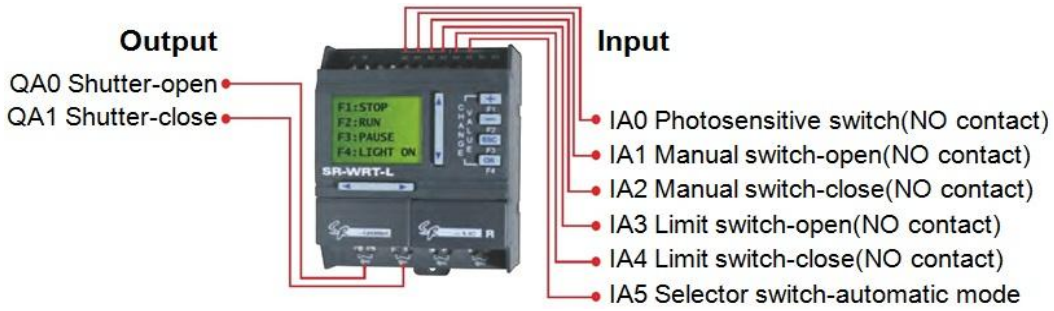
The shutter can be manually controlled via the switches IA1 and IA2,in case that the selector switch (IA5) is not set at automatic position.

Automatic operation:

The selector switch (IA5) must be set at automatic position for automatic operation. If the photosensitive switch (IA0) is activated, the shutter is closed in the period time from 6:00 in the evening to 7:00 in the next morning, and opened in the period time from 7:00 in the morning to 6:00in the evening.

Advantages and Specialties

The times can easily be adjusted by any case, e.g. different times on workdays, weekend and holidays.
Energy saving by using of time switch and photosensitive switch.



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