

# M900 General output type

Intelligence PID Controller

Operation Guide

Thanks for purchasing our M900-Series controller , instruction required while using our product,please read this through carefully for the understanding of operating procedure,keep this manual at hand for your reference.

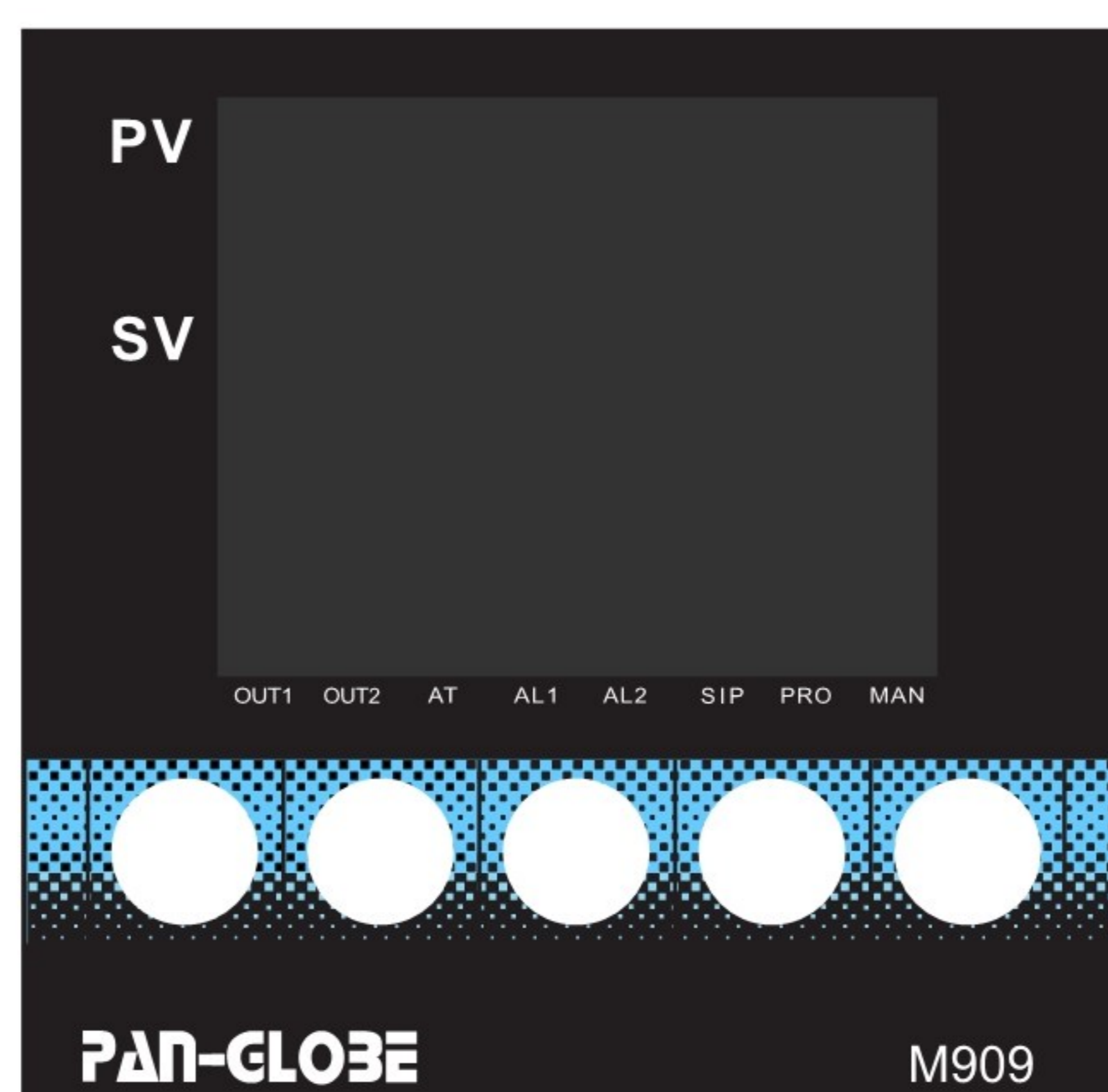
## 1 Attention

- 1.Please don't in place full of explosive and easy burning gas using the product
- 2.Do not touch the power terminal after supply AC power, in order to avoid electric shocks.
- 3.When connect with Instrument power, please make sure to power off !
- 4.Please select of proper pressure terminal with the type of M3 screw and its biggest torque must be within the range such as 8KG.
- 5.Please do not be installed under the conditions of easy to interfere, corrosive gases, high temperature and humidity.
- 6.To avoid other interference, please keep the power wires supplied distance from power wire and load wire.
- 7.When the input sensors is T/C, if necessary to extend the lead wire, please use compensation wire according to the T/C .
- 8.It is strictly prohibited to decompose, modification and repair the product
- 9.Please confirm receipt of proper use of wiring (Input,Output,Alarm) terminals.
- 10.Do not use in the following conditions:
  - The temperature change very strong place,
  - Temperature is too high, resulting in the place of water,
  - Corrosive gases or layers in place
  - There is water, oil, chemical splash place

## 2 General characteristic

Power voltage	AC85-265V, 50/60Hz (DC POWER optional items)
Power consumed	5VA max
Control mode	PID, PD, PI, P
Operation ambience temperature	0-50°C
Operation ambience humidity	50-85%RH
Input	General input (T/C, Pt100, analog signal)
Output	Relay, current and voltage zero passage trigger single-phase or three-phase unidirectional parallel SCR or two-way SCR and half empty module
Sampling period	150ms
Position feedback Input	0-2VDC                      0-1KΩ potentiometer or 4-20mA
Display error	±0.5%FS
With configurable MV, PV, SV and transfer function, the control valve online display, accessories MODBUS communication interface, the RS - 485 master-slave communication, the machine can set value SV machines or closed to freedom of choice (optional), soft dynamic function (optional) suitable for silicon pliers heater warms up in the cold flow can automatically	

## 3 Operation instruction



NO.	Names	Function
1	PV	Show input deteting value/ parameter mode (Red led indicator)
2	SV	Show Set Value or present
3	OUT1	Controller transfer light
4	PVT	Transmitted light
5	AT	When do automatic running, this Light on (orange LED)
6	AL1	When Alarm 1 output, the light on (Red LED)
7	AL2	When Alarm 2 output, the light on (Red LED)
8	PRO	When program runs, the light on (orange)

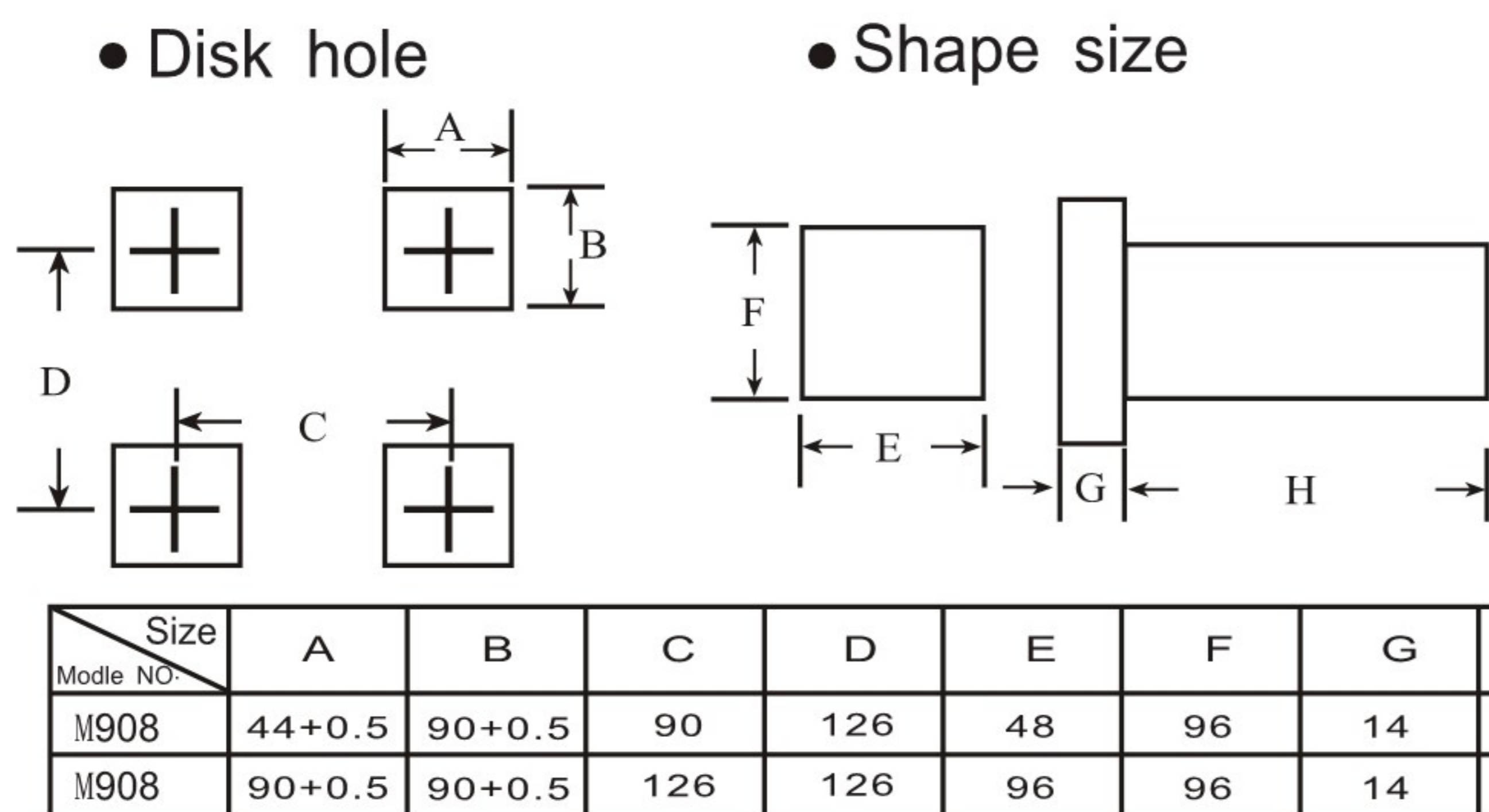
NO.	Names	Function
9	MAN	Under manual output state, the Light on (Orange LED)
10	▲	Add SV
11	▼	Reduce SV
12	◀	Move SV digit (1digit, 2digit, 3digit 4digit for a circle)
13	SET	enter shift display parameter, press shift key
14	A/M	Switch automatic (PID turing) output or manual output model
15	MV	Controller transfer valve indicator

#### 4 Signal input, Alarm mode selection table

Input type	Code	Range
K	K	0-1370°C/0-2192°F
J	J	0-1200°C/0-2192°F
R	R	0-1760°C/0-3216°F
S	S	0-1760°C/0-3216°F
B	B	0-1820°C/0-3308°F
E	E	0-1000°C/0-1832°F
T	T	0-600.0°C/0-999.0°F
DPT100	DPT100	-199.9°C-600.0°C/-199.9-999.0°F
LN	LN	Linear frequency signal 4-20MA, 0-1V, 0-50MV, 0-100MV, 0-5V.

NO.	Instruction
0	High deviation alarm
1	Lower deviation alarm
2	The absolute value high alarm
3	The absolute value low alarm
4	In area alarm
5	outside area alarm
6	Lower deviation alarm (first time not alarm)
7	The absolute value low alarm (first time not alarm)
8	Broken accidentally alarm
9	In area alarm (first time not alarm)

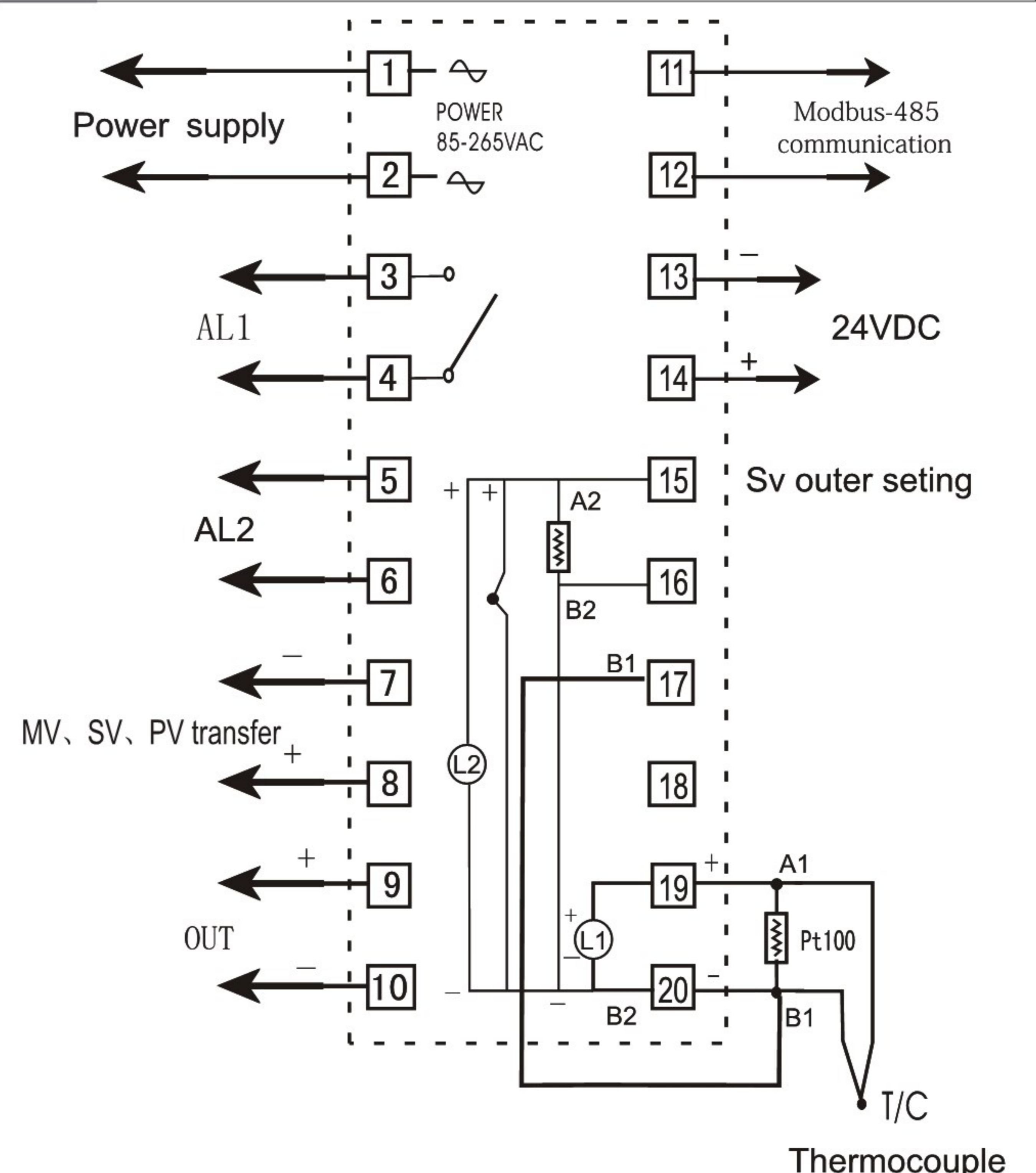
#### 5 Disk hole / shape size



#### 6 Information for error code

Error code	Instruction	Solutions
UUU!	The first group sensor wire broken, electrode opposition, or out of the range. The first group input signal higher than USP	Check input signal whether wrong or not. Check the range input whether reasonable
nnn!	The first group input signal lower than LSP	Check the range of input whether reasonable
LUCE	Nonlinear temperature compensation failure	Check the diode of temperature compensation broken or not
UUUU	Broken Thermal couple	Check T/C or wire of compensation

#### 7 Connection instructions paradigm



M909 or M908

# 1 Operation instruction

Step 1: Measure the input signal type selection

- A: At the same time press SET key+◀, enter LEVEL2  
 B: In the INP options press ◀SV display will start blinking.  
 C: Press ▲or ▼select input signal type  
 D: Press SET key confirm the modified  
 E: At the same time press SET key+◀, back to LEVEL0

Step 2: Set alarm mode Adl(also can be set AL2)

- A: Press SET key for 5 seconds to enter LEVEL1.  
 B: Press SET button several times to Adl options, then press◀ left key,the SV display will start blinking.  
 C: Press the ▲or ▼key to choose the required mode (pls refer to alarm mode selection sheet).  
 D: The press SET key to confirm modified.  
 E: The press SET key for 5 seconds back to LEVEL0

Step 3: set the alarm value AL1,(also can be set AL2)

- A: press SET button several times to AL1 options, then press ◀left key,the SV display will start blinking.  
 B: press the ▲or ▼ key to set numerical value, then press left key skip to the next and we can set the same.  
 C: SET after the completion of the press SET key.  
 D: The press SET key for 5 seconds back to LEVEL0  
 Note: AL1, AL2 numerical 0-1-4-5-6-9 in alarm mode, the deviation for the SV, the model of 2-3 is the absolute value of the alarm temperature, in mode 8, no stipulate.

Step 4: Machine internal set control temperature value (SV)

- A: In the LEVEL0, under the 

PV
SV

,  
 B: press the ◀ key, the SV display will blinking first time, then press the ▲or ▼ key to set numerical value.  
 C: press ◀ key skip to the next and we can set the same.  
 D: SET after the completion of the press SET key.

Maexternal external set the SV feature selection (optional)

- A, choose the LN input use LEVEL3 input range selection and adjustment of zero and full, TOSV "0" when using SV set value, when placing "1" and for external input as the SV set values  
 B, setting the input circuit can directly input thermocouple, thermal resistance signal as the two tests measuring ability  
 C, AS the multipoint, from control system application.

Step 5: set automatic calculus (AT)

- A, Under the LEVEL0, press SET button several times to the AT option.  
 B, Press the ◀key, the SV display will Blinking for the first time, and press ▲ key SV display 1.  
 C, press SET key, colleagues AT lights, instrument began to automatic calculation.  
 D, In the process of thermal parameter, this will not fail AT calculus.

Note: 1, AT first set must set the SV and in the PV value is less than the SV larger state investment is better.

- 2, The automatic calculus successful namely AT light, means that the instrument according to the situation of system automatically choose a group Suitable PID control parameters and forecast system.  
 3, some special occasions such as to control the quality request is higher or the site doesn't allow for the AT calculus, still need to manually set control parameters.

## 2 Advanced operation

1) switch manually or automatically switchover without interference.

Press the A/M, MAN indicator will bright, entered manually state, the current output value is the percentage of SV display, PV display for the measured values use the ◀ & ▲ ▼ button to manually modify the output percentage, and then press A/M, MAN lights put out, the instrument enter into the state of automatic  
 The SV display is the set value.

Note: the instrument in any situation into the hands/automatic state.

2) Under LEVEL 0, press SET KEY for 5 second into LEVEL 1, press SET KEY choose PID parameters

3) At room temperature display amendment.

Thermocouple indexing number input, if the input terminal sub, instrument display values should be approximate to room temperature, if you have bigger difference, Colleagues, please press the SET key and◀ click to enter LEVEL2 stores, and then press the SET key several times, find the PVS option Artificial setting fixed PVS value (plus or minus)

4) Transfer function(optional)

This machine is equipped with a set of MV, SV, PV transmission output, choose by TH item 6 ways.

5) soft start preset slope control (optional)

When your system need soft start (SV) preset slope warming please operation instrument in the following order:

SET the SV value → find RAP options under the LEVEL0 press SET key, SET the temperature gradient → and then press

SET key to find RTM options, SET the slope time (points). (for example, to set up the slope to 10 °C per minute

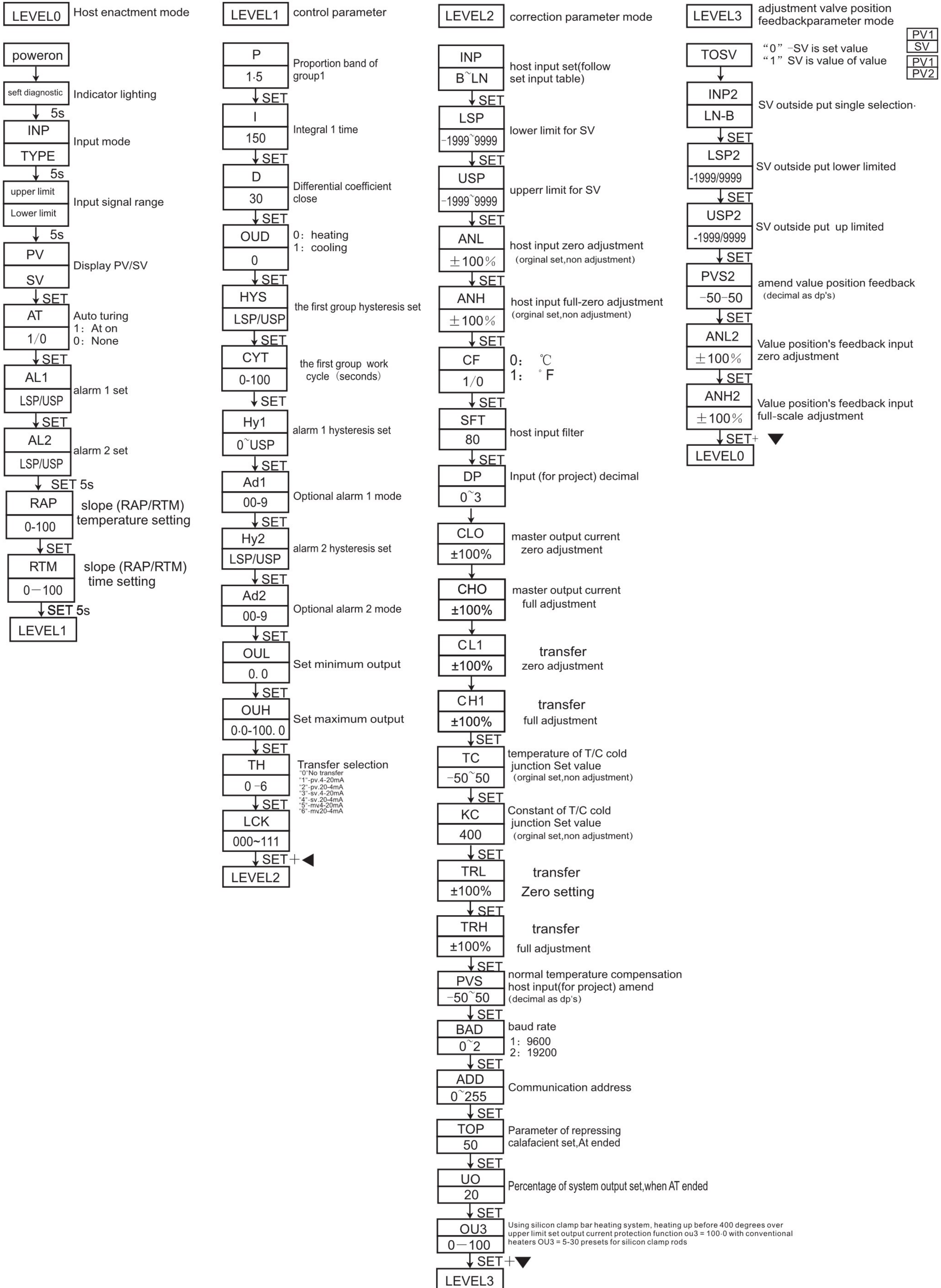
At the right time. RAP to 10.0, for RTM is set to 001.0) → set, soft start will be from the current PV value immediately

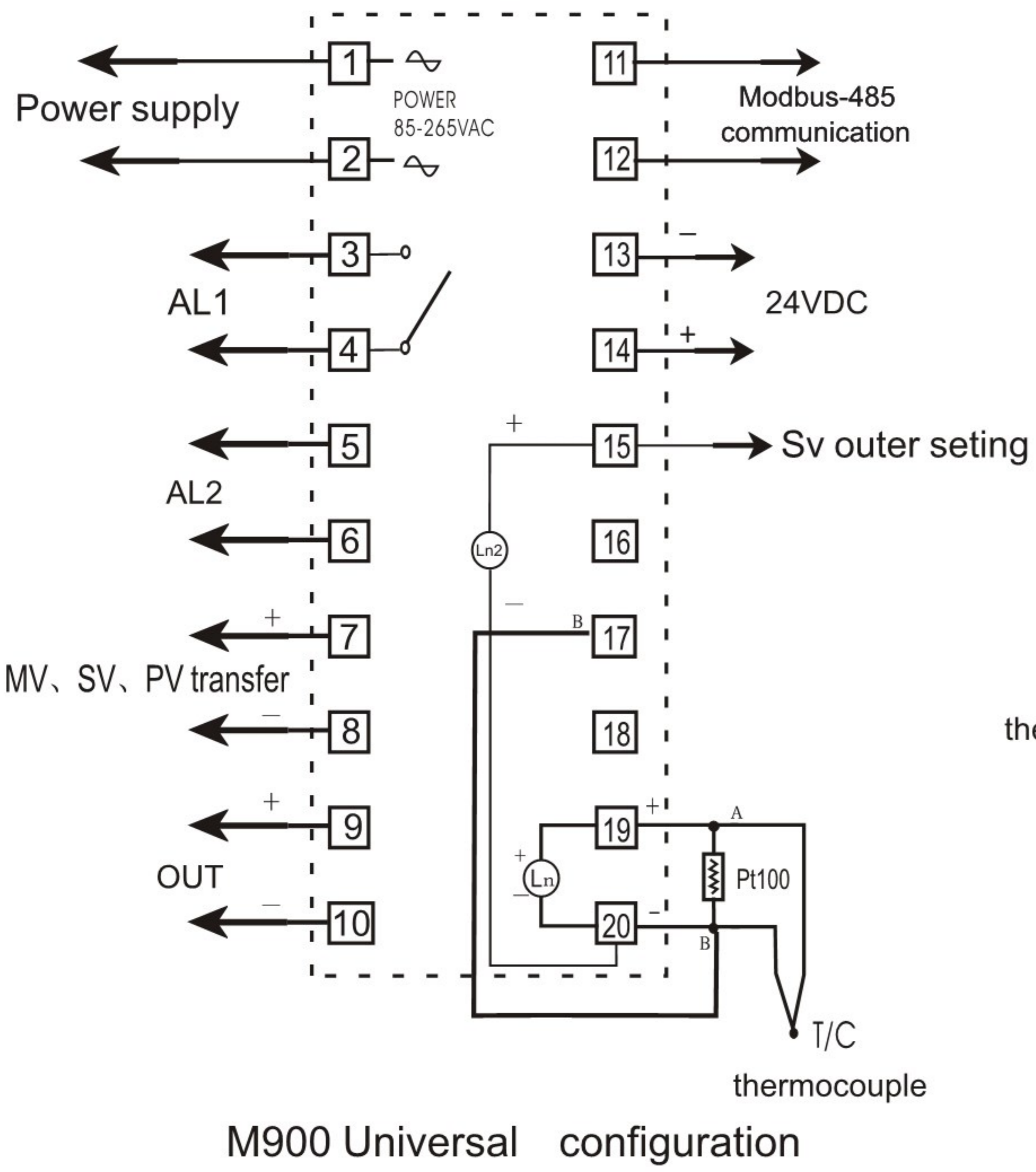
According to the slope to heat up, until the stop when PV = SV.

Note: if need to suspend the slope to heat up, at the same time, please press SET key and▲ on time, SV value will be fixed value control can be arbitrary changes

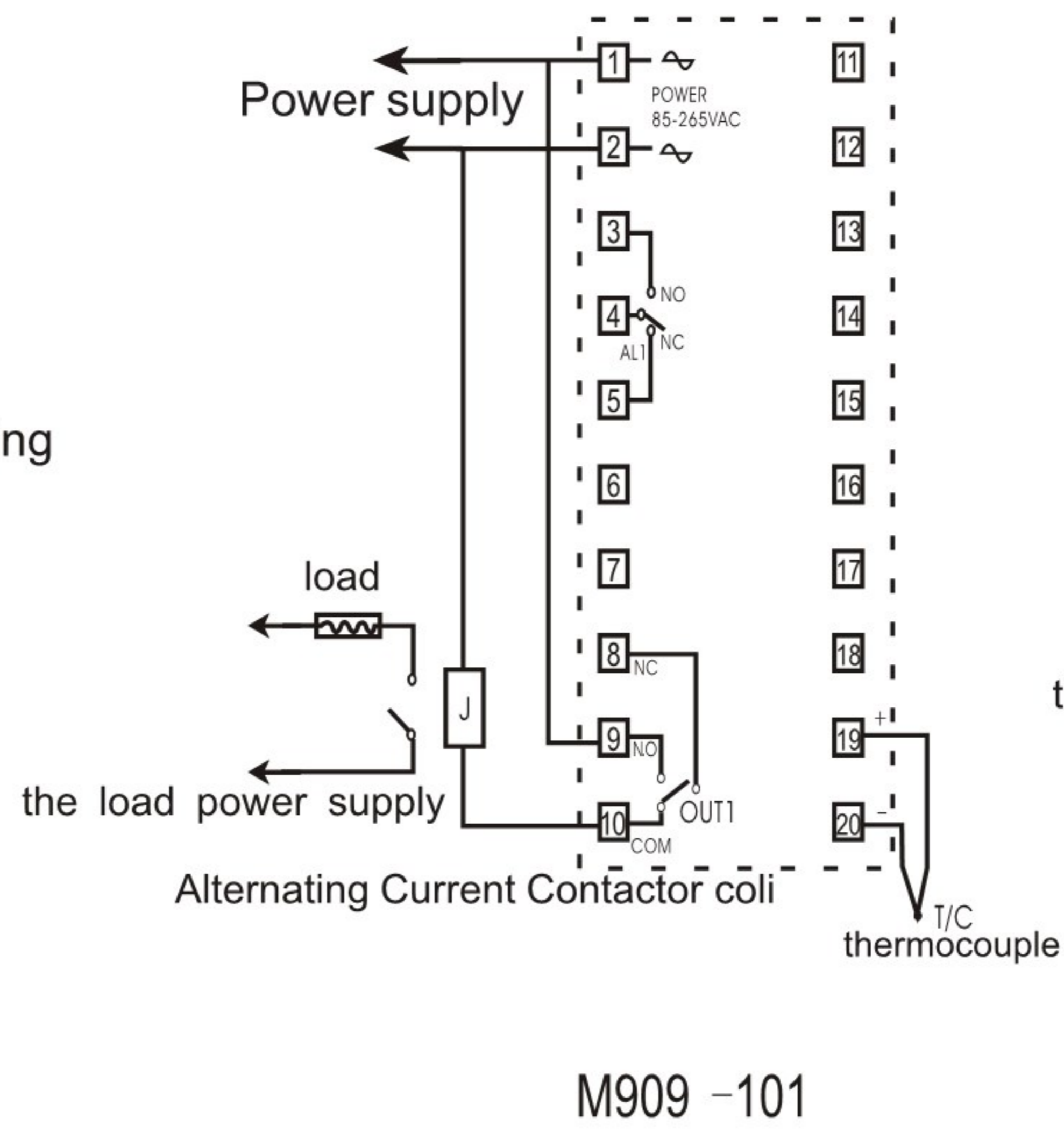
If you want to cancel the function of soft start, please put 0.0 °C / 0 score value.

# 9 Manipulation

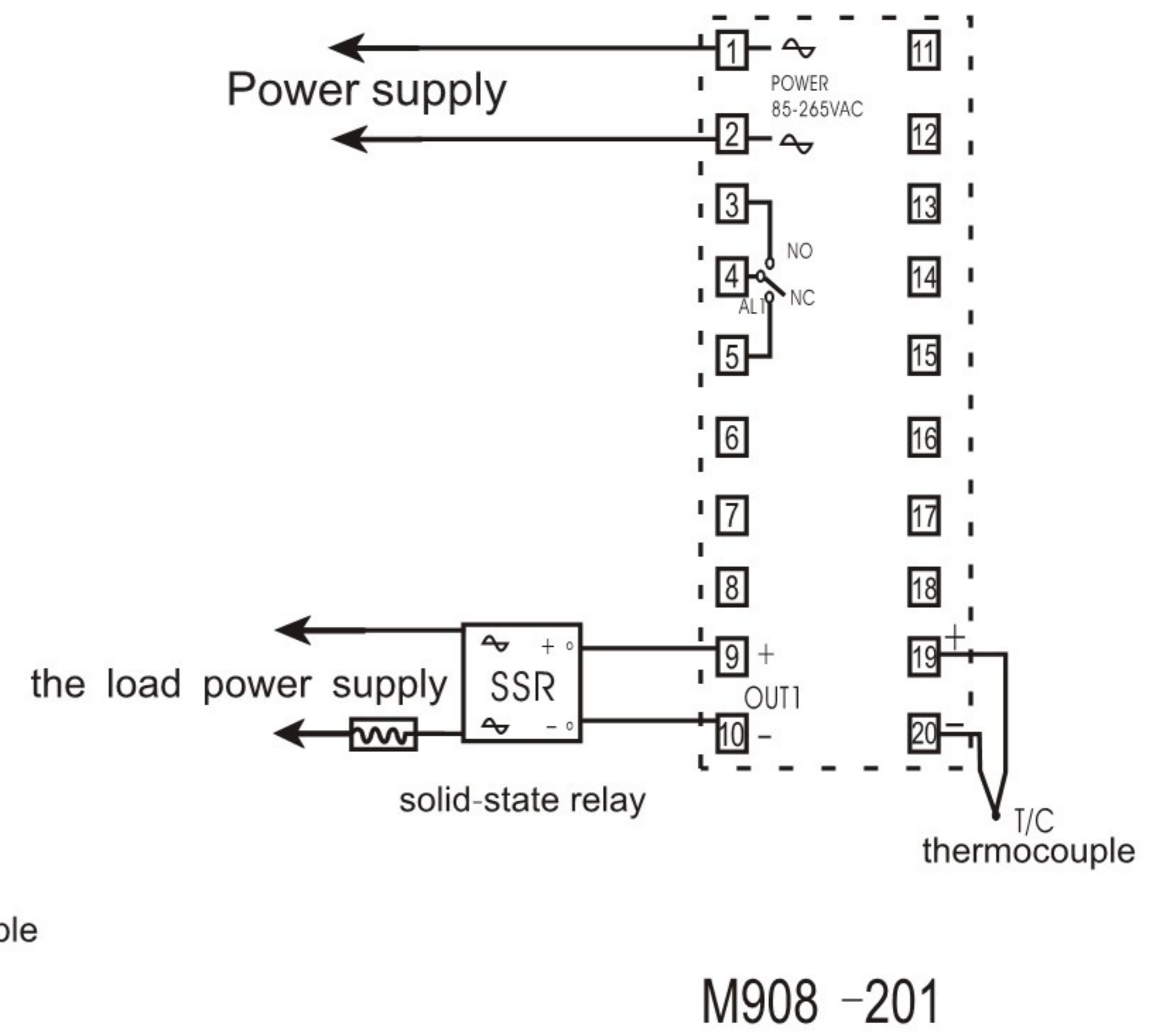




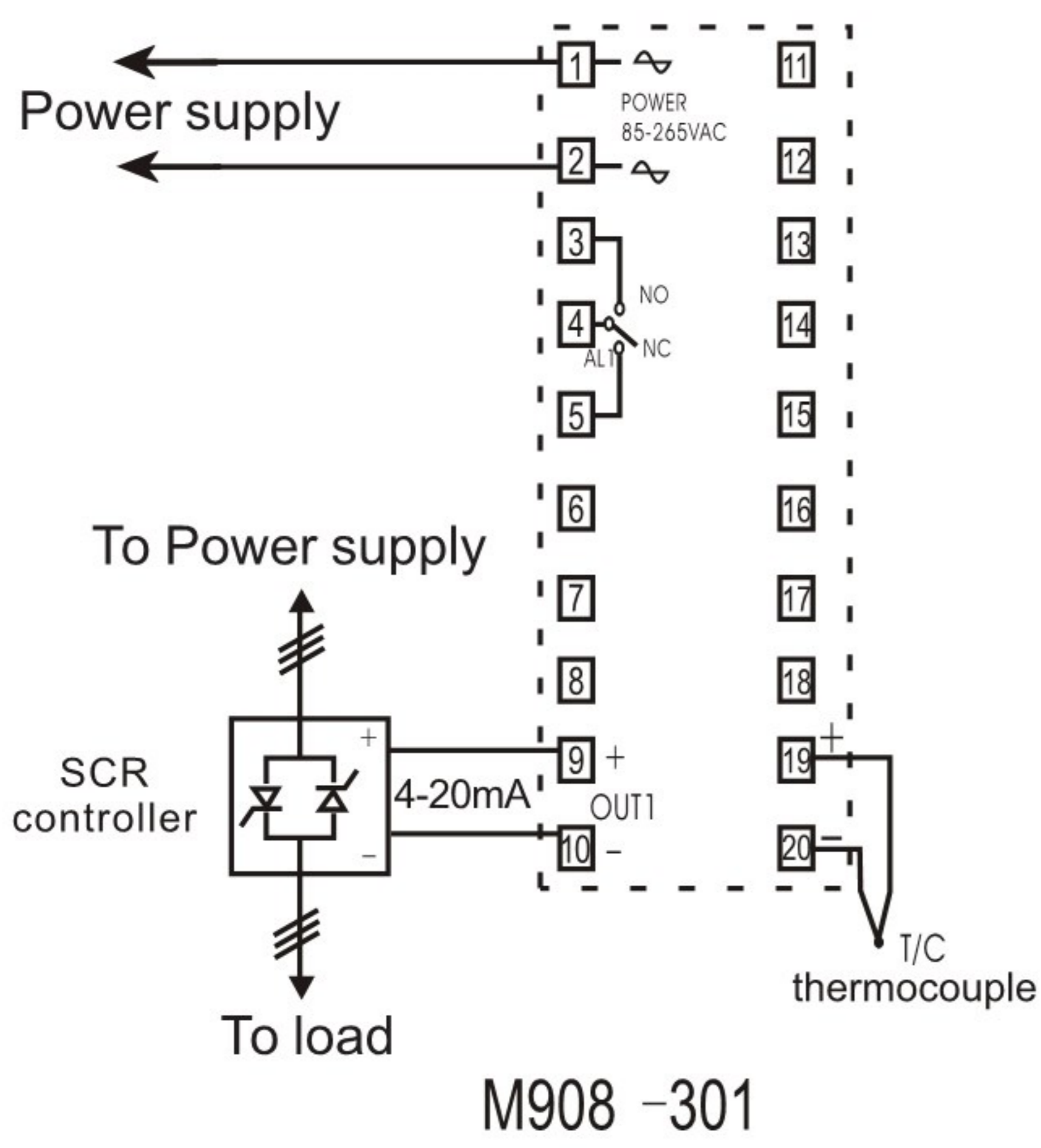
M900 Universal configuration



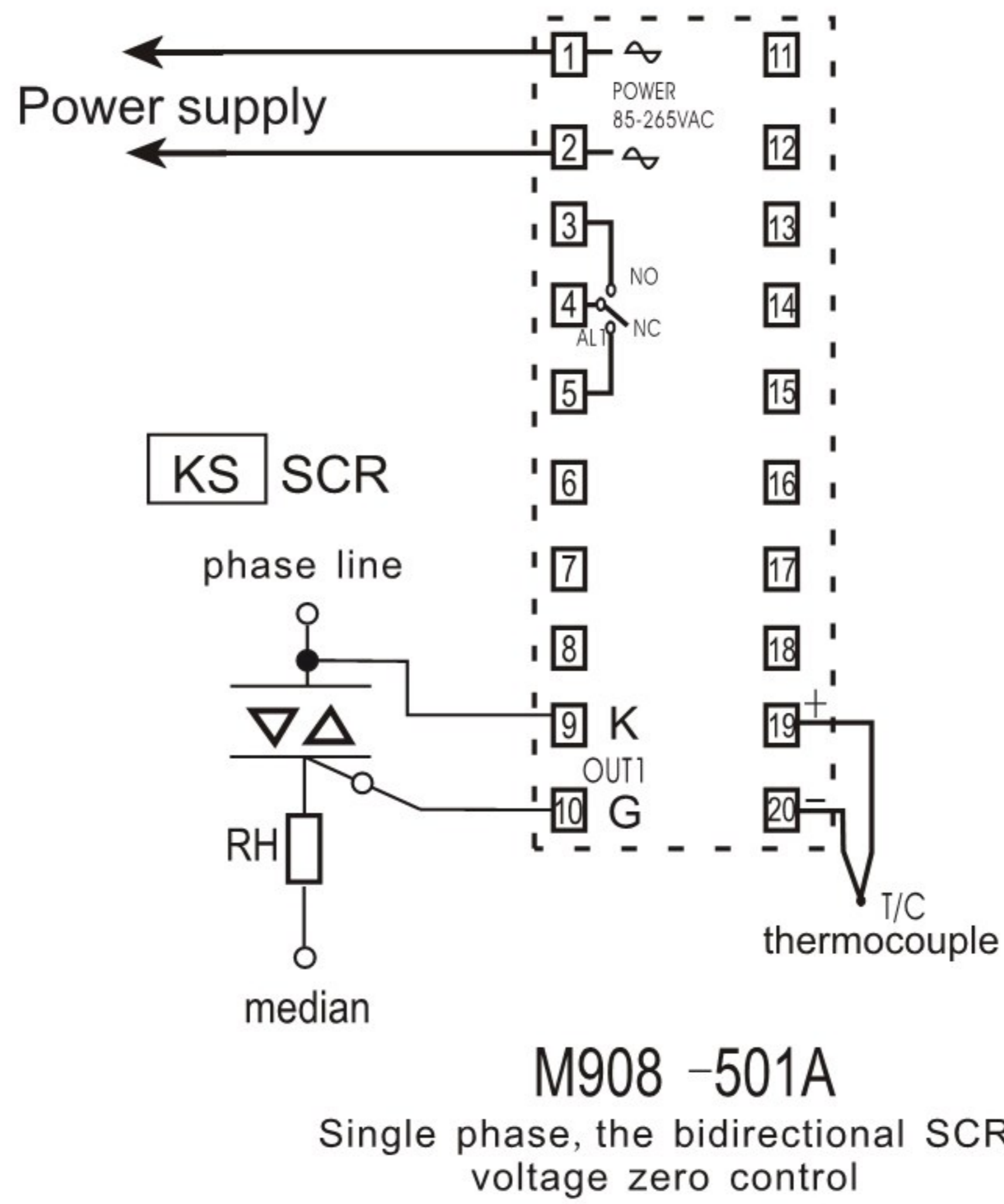
M909-101



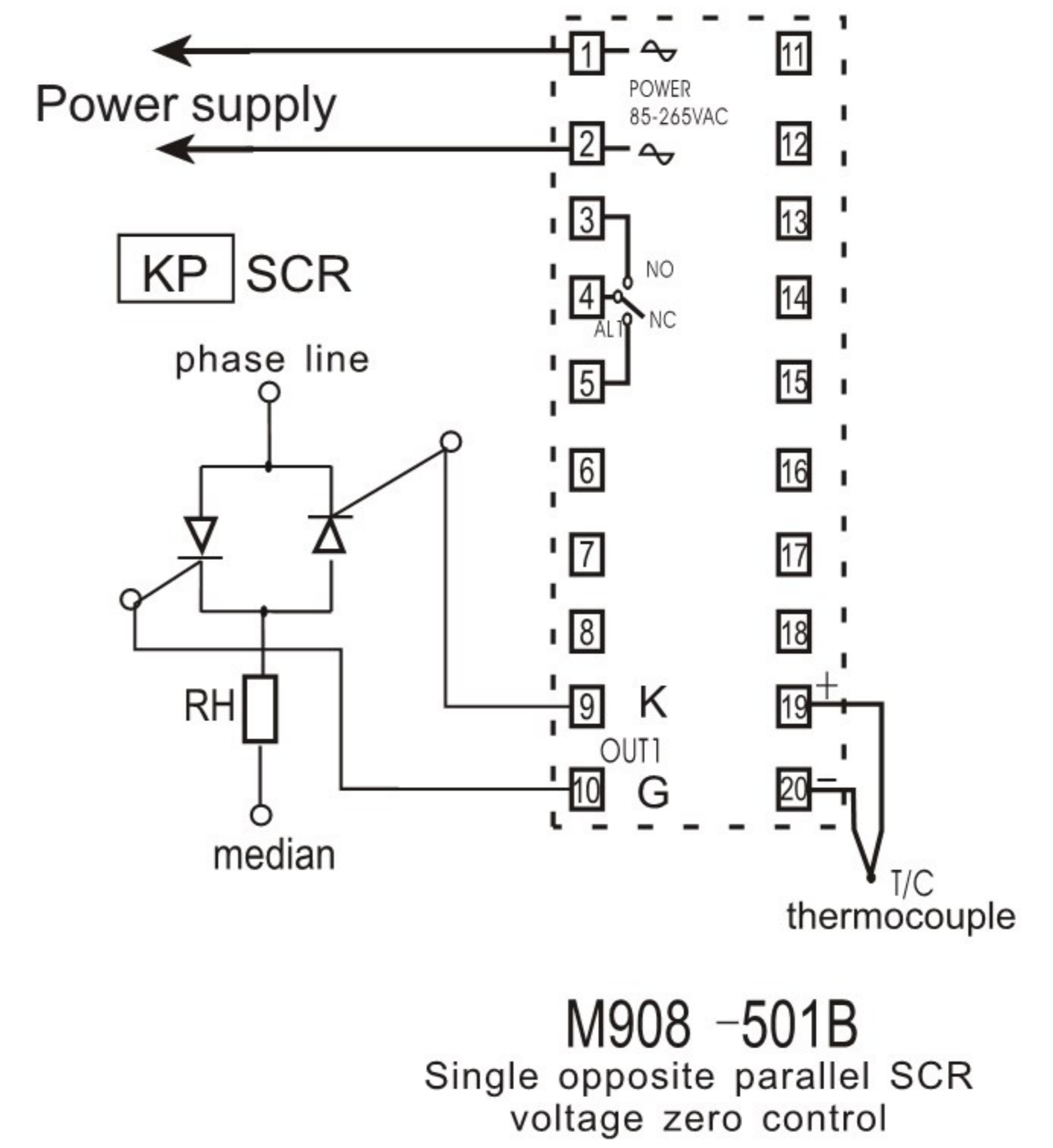
M908-201



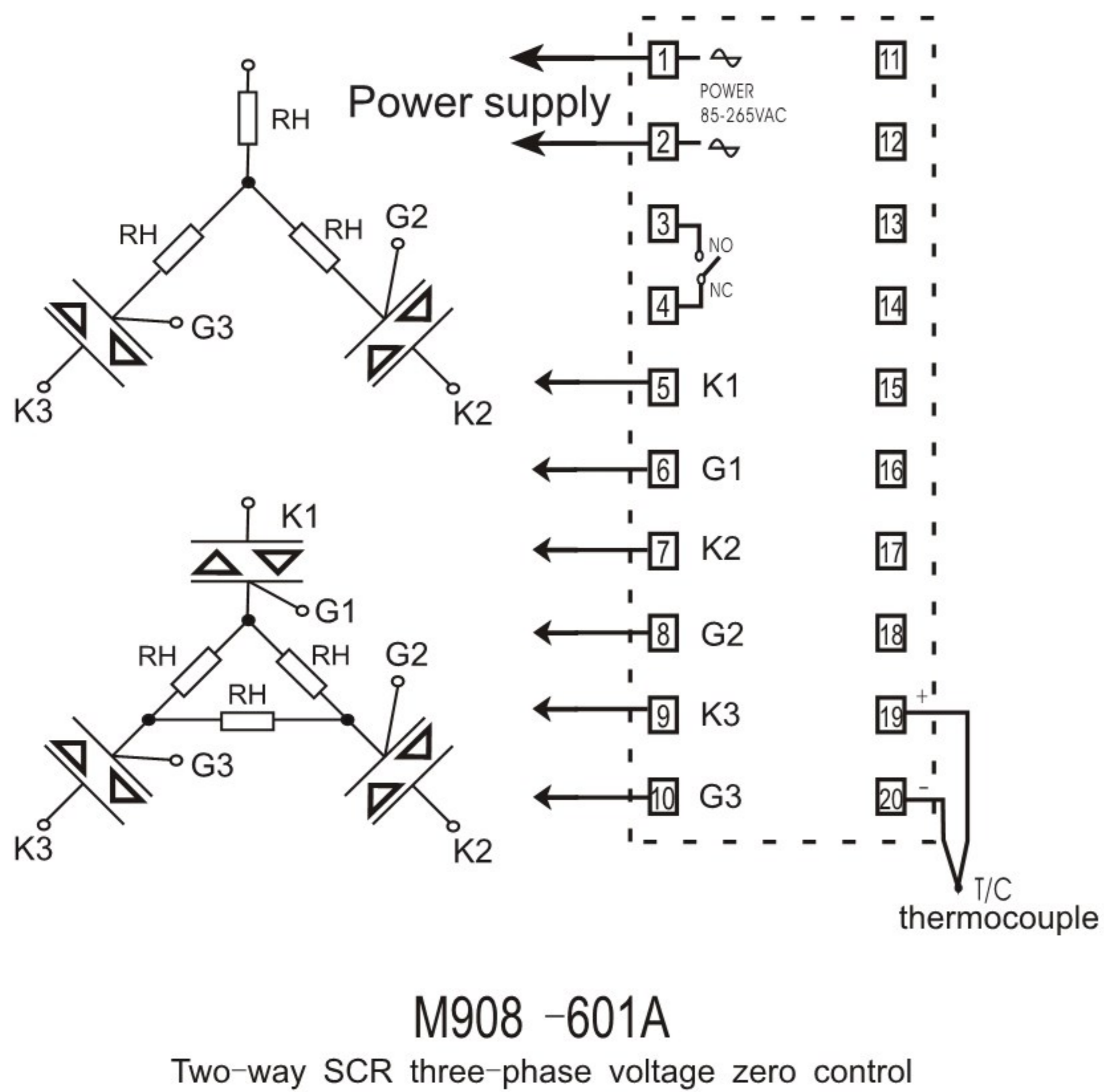
M908-301



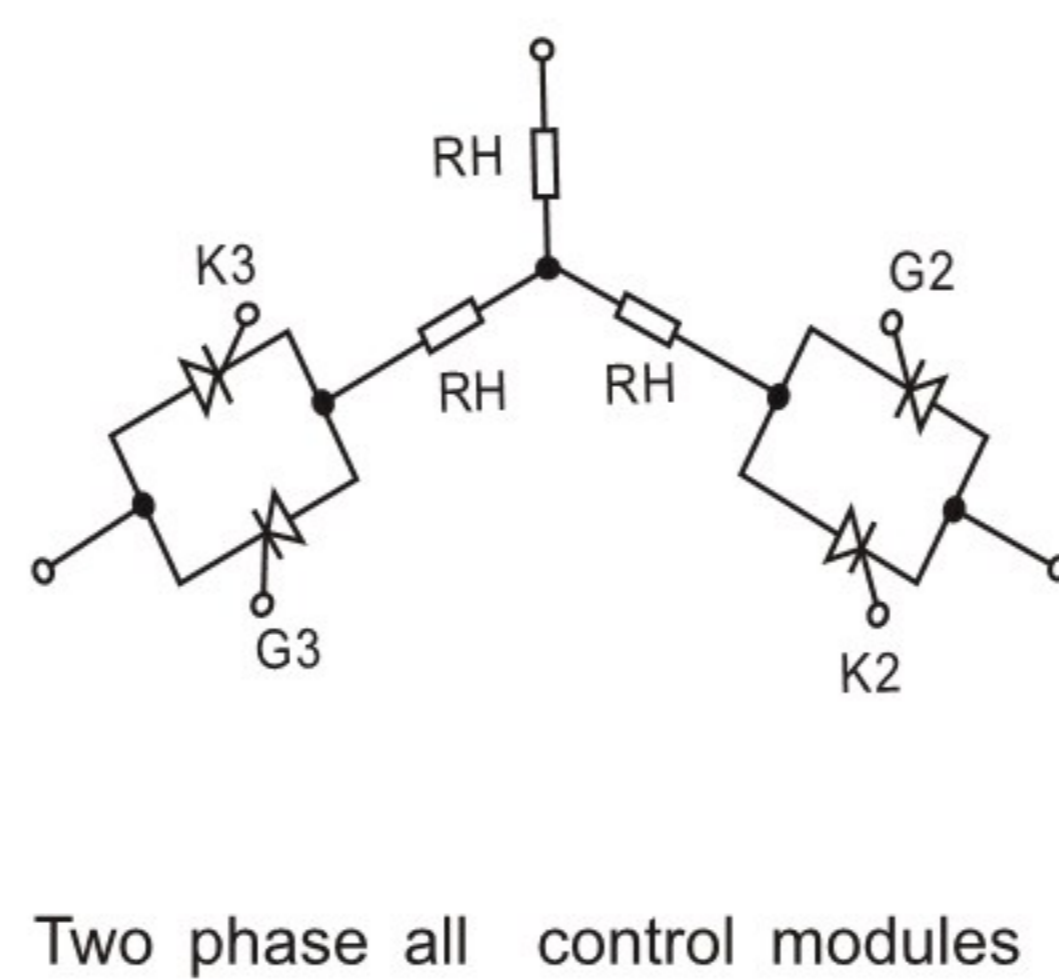
M908-501A  
Single phase, the bidirectional SCR voltage zero control



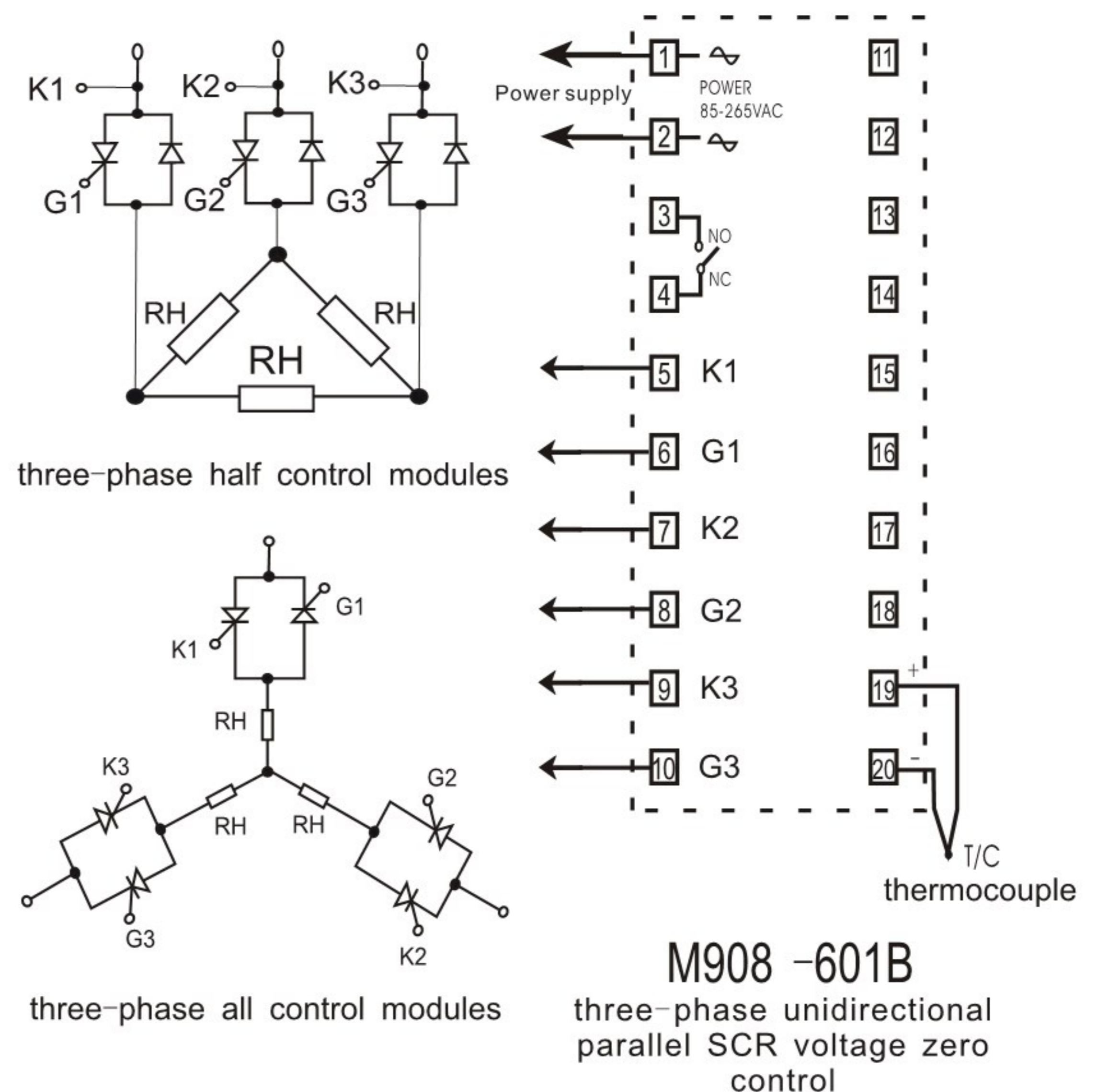
M908-501B  
Single opposite parallel SCR voltage zero control



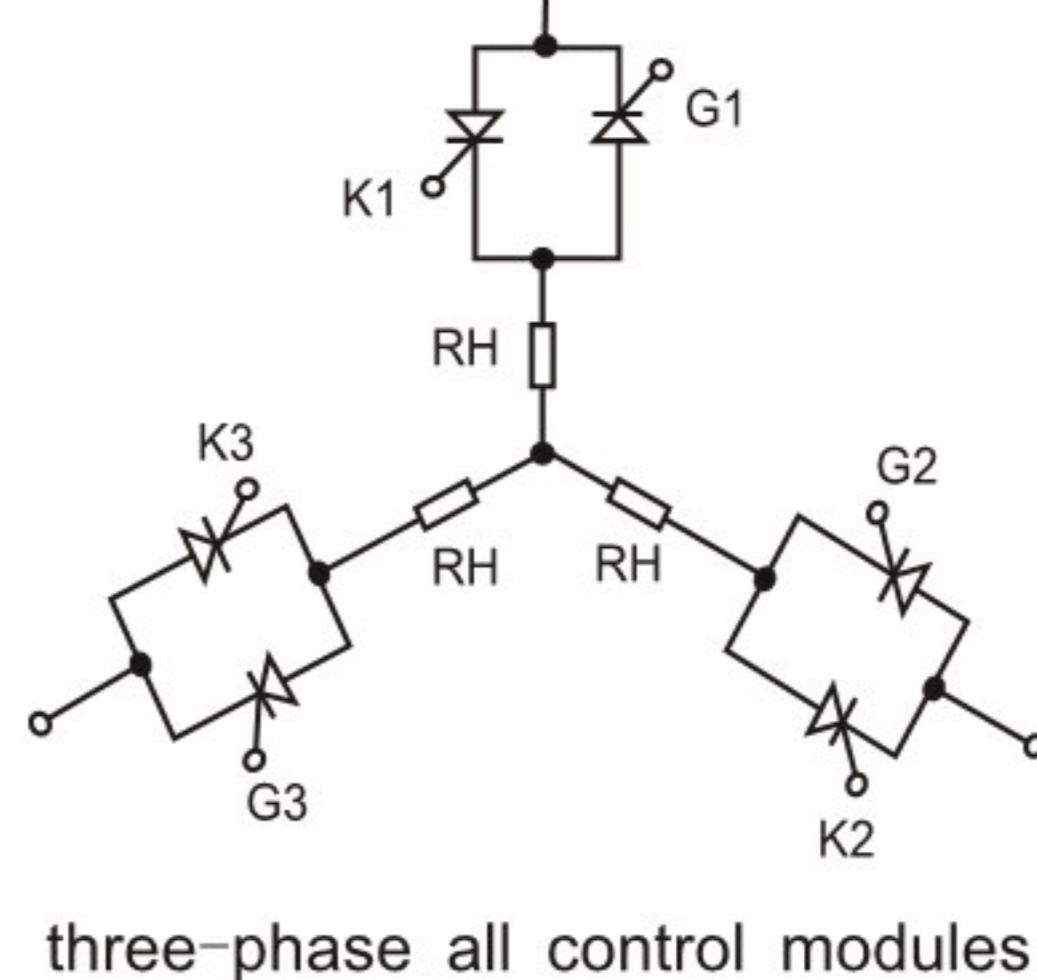
M908-601A  
Two-way SCR three-phase voltage zero control



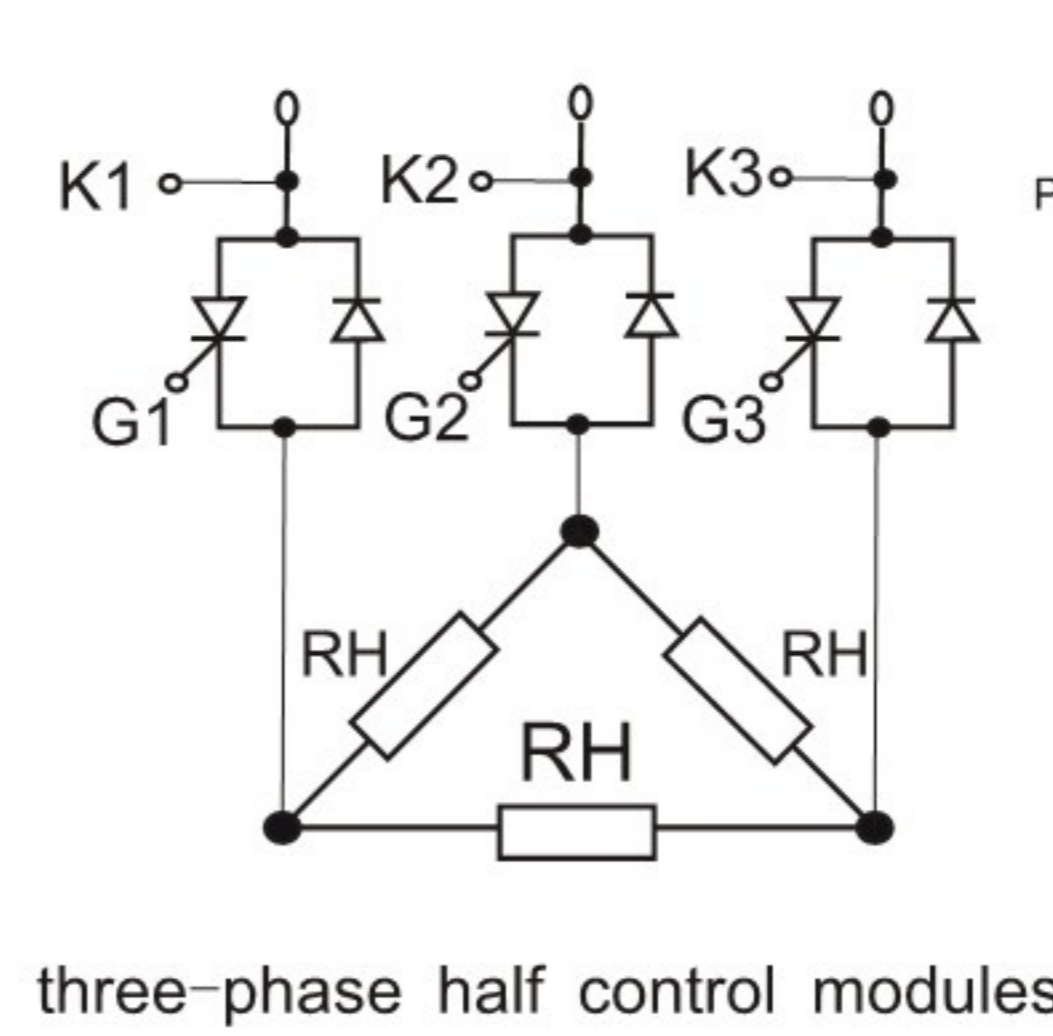
Two phase all control modules



M908-601B  
three-phase unidirectional parallel SCR voltage zero control



three-phase all control modules



three-phase half control modules