Product Description

KRH is a three-phase high current power regulator that is compatible with RS 485, analog control and potentiometer control, ratings from 100A to 200A @ 176-440 VAC. The output modes are available with phase-shifted or power cycle output. Built-in fuse and various fault detection functions available.

- Control is compatible with RS 485, analog control (4-20mA, 0-5V, 1-5V, 0-10V), and potentiometer control
- Phase shifted output or power cycle output
- Load current and load voltage display
- Max. constant current and constant voltage output setting
- Max. output ratio setting
- Load break alarm
- Phase loss alarm
- SCR failure alarm
- Fuse break alarm
- Over temperature protection
- Built in fuse protection
- Soft start, soft off
- Soft up, soft down
- Transformer load setting mode

Ordering Information

KRH	380	E	120	M	F	-T3	(XXX)
KRH Series	Load Voltage 380:176-440VAC	Control Mode E: Power cycle output or phase-shifted output (set)	Load Current 100:100Amp 120:120Amp 150:150Amp 200:200Amp	Multi-Function: Load break alarm, Fuse break alarm, Phase loss alarm, Over current alarm, Max. constant current & voltage output setting, Max. output ratio setting, SCR failure detection, Over temperature alarm, Transformer load setting mode, Soft start, soft off, soft up, soft down	F: Built In Fuse Blank: No Fuse	T3: Three Phase Three Control	Customized Code

The specific models are listed in the following table:

Part Number	Rated current	Rated Current of Fuse	Suggested Load Current
KRH380E100MF-T3	100A	120A	80A
KRH380E120MF-T3	120A	150A	100A
KRH380E150MF-T3	150A	180A	130A
KRH380E200M-T3	200A	No Fuse	160A

	Control method	Output method(1)
KRH series	0-10V	$U_{LOAD}^2=U_{AC}^2\times V_{CONTROL}/10$
	0-5V	$U_{LOAD}^2=U_{AC}^2\times V_{CONTROL}/5$
	1-5V	$U_{LOAD}^2=U_{AC}^2\times(V_{CONTROL}-1)/4$
	4-20mA	$U_{LOAD}^2=U_{AC}^2\times(I_{CON}-4)/16$
	RS 485	$U_{LOAD}^2=U_{AC}^2\times V_{RS\ 485}/1000$
	Potentiometer	$U_{LOAD}^2=U_{AC}^2\times R_{IN}$

Note: (1) U_{LOAD} : Load voltage, U_{AC} : Indicates grid voltage, I_{CON} : Control current, $V_{CONTROL}$: Control voltage, $V_{RS\ 485}$: RS 485 setting, R_{IN} : Proportion of potentiometer.

Technical Specification

Input Specification(Ta=25°C)			
Auxiliary Power Supply			185-245VAC
Auxiliary Power Supply Current			≤0.5A@220VAC
Parameters of Control Signal	Voltage Control	Control Voltage Range	0-5VDC
			0-10VDC
			1-5VDC
		Turn-on Voltage(0-10VDC)	0.4VDC Max.
		Turn-on Voltage(0-5VDC)	0.2VDC Max.
		Turn-on Voltage(1-5VDC)	1.3VDC Max.
		Turn-off Voltage(0-10VDC)	0.1VDC Min.
		Turn-off Voltage(0-5VDC)	0.05VDC Min.
		Turn-off Voltage(1-5VDC)	0.8VDC Min.
		Input Impedance	25.1KΩ (Typical)
	Current Control	Control Current Range	4-20mA
		Turn-on Current	4.6mA Max.
		Turn-off Current	3.8mA Min.
		Input Impedance	100Ω (Typical)
	RS 485 Control		0-1000
	Potentiometer Control		10KΩ

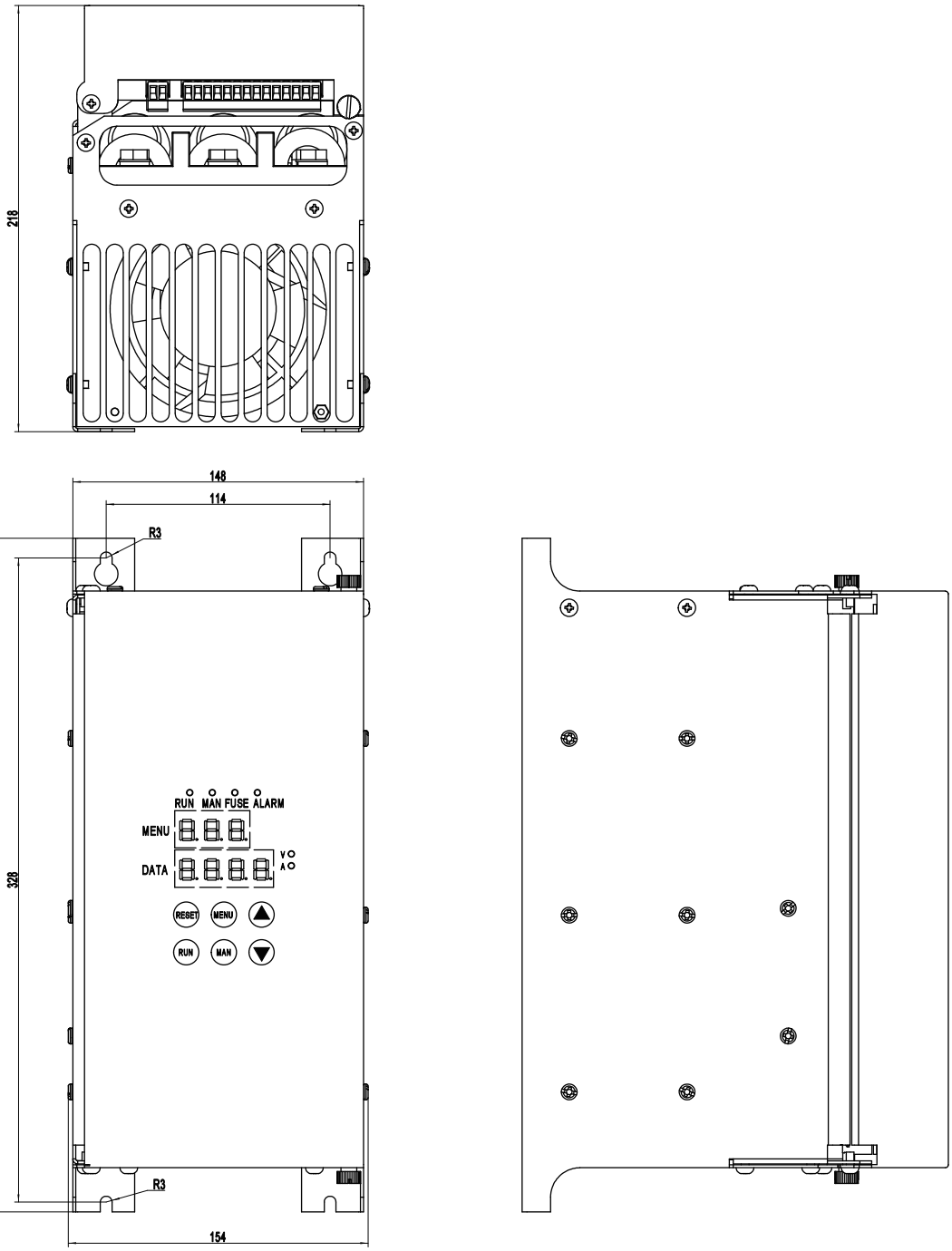
Output Specification(Ta=25°C)		
Load Power Supply Voltage Range		176-440VAC
Max. Surge Current(@10ms)	100A	2600A
	120A	5000A
	150A	6000A
	200A	7000A
Max. I^2t(@10ms)	100A	33800A^2s
	120A	12500A^2s
	150A	180000A^2s
	200A	245000A^2s
Max. Transient Overvoltage		1200Vpk
Output Power		0-99%
Operating Frequency Range		47-63Hz
Max. Off-state Leakage Current		5mA(@220VAC/50Hz)
Off-state Voltage dv/dt		1000V/us

General Information(Ta=25°C)		
Output Alarm Contact Parameters（AL1 AL2）	Output Type	A set of normally open electromagnetic relays
	Dielectric Strength (Disconnect between contacts)	1000VAC
	Contact Load (Resistance)	2A@250VAC/30VDC
Dielectric Strength	Input/Output	2500Vrms
	Input, Output/Case	2500Vrms
Insulation Resistance		1000MΩ（@500V）
Operating Temperature Range		-30℃ ～ +50℃
Weight（Typical）		8.3kg
LED Indication	Operating Indicator (RUN, red)	The indicator is on when the product is working, and the indicator is off when it stops working
	Potentiometer Control Indicator (MAN, red)	The indicator lights up when switching to potentiometer control
	Fuse Break Indicator (FUSE, red)	The indicator lights up when the fuse break
	Alarm Indicator (ALARM, red)	The indicator lights up when load break, phase loss, SCR fault occurs
	Voltage Indicator (A, red)	The indicator lights up when the output voltage is displayed
	Current Indicator (A, red)	The indicator lights up when the output current is displayed
Button Description	RESET	Long press 5s to restore factory settings
	MENU	Long press 2s to enter the menu setting screen
	RUN	Control product running status and stop status
	MAN	Switch potentiometer control button
	▲	Increase
	▼	Decrease

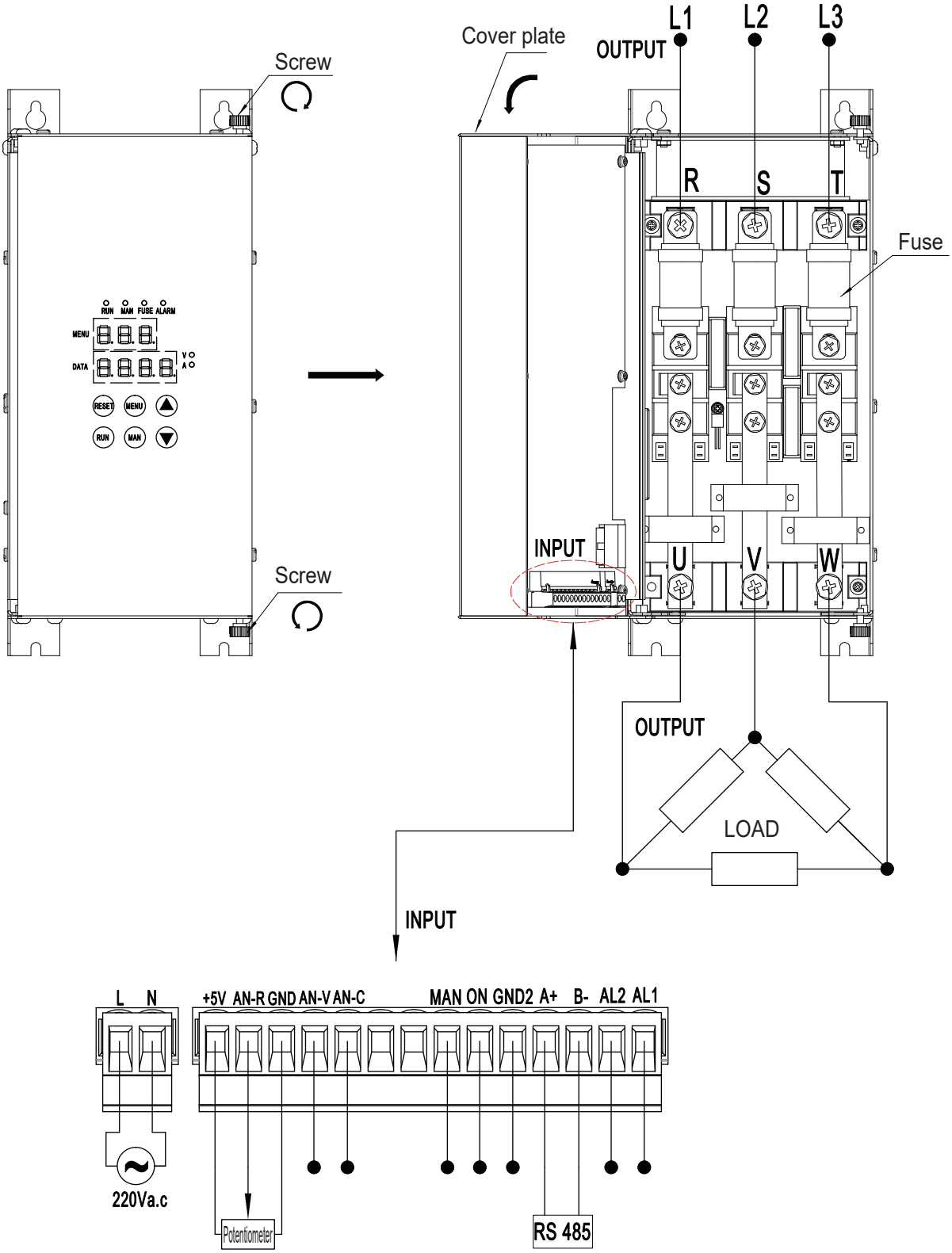
Function Introduction

Phase Loss Protection	If a phase loss occurs in the three phase voltage system, the alarm indicator lights up and the normally open alarm contacts(AL1, AL2) will close.
Load Disconnection Alarm and SCR Fault Detection	When the load is disconnected and SCR is detected as short-circuited during the operation, the alarm indicator lights up and the output normally open alarm contacts (AL1, AL2) will close.
Over Temperature Protection	The product monitors the temperature of heatsink in real time during operation. By default, when the temperature exceeds 90°C (typical value), the alarm indicator lights up, the output normally open alarm contacts (AL1, AL2) will close, and the output is cut off. The product can resume normal operation only when the temperature drops below the set value of 60°C (typical value).
Load Power Supply Detection	When the load power supply is disconnected, the alarm indicator lights up and the normally open alarm contacts(AL1, AL2) will close.

Outline Dimensions

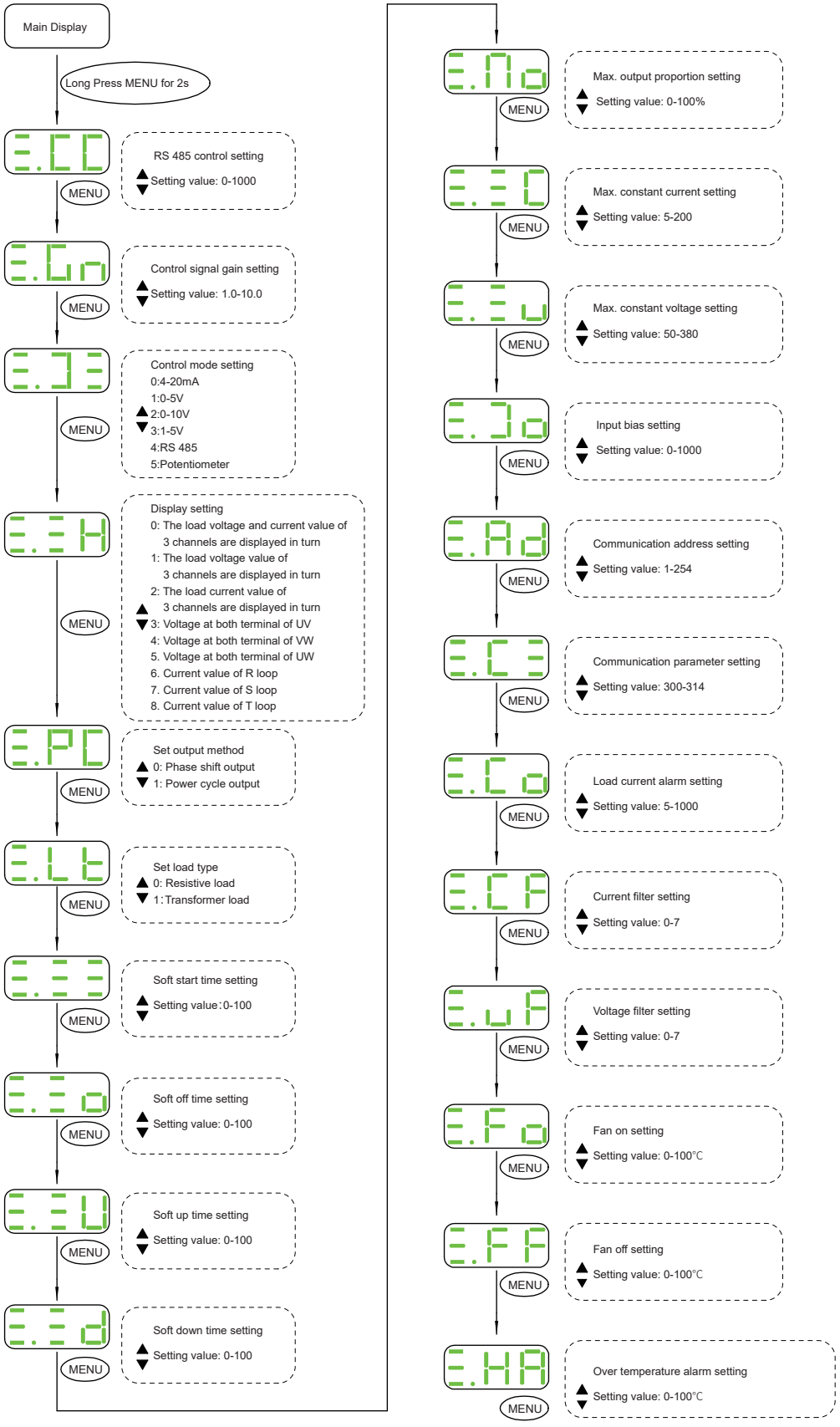


Wiring Diagram



GND: Common ground for analog control and potentiometer control;
AN-V: Connect to the positive pole of the analog signal 0-5V or 0-10V or 1-5V;
AN-C: Connect to the positive pole of the analog signal 4-20mA;
MAN: Potentiometer control when short-connected with GND2;
ON: The product works normally when shorted with GND2, and stops when suspended;
AL1/AL2: One set of normally open contacts, 2A (@250VAC/30VDC).

Setting Method



If there is no operation within 60 seconds,
it will automatically return to the main screen.
Press the RESET key to return to the main screen.

Setting Method				
Alphabetic Display	Item	Value	Initial Setting Value	Note
E.CC	RS 485 control setting	0~1000	0	If the value is 250, output power is 25%. If the value is 1000, the output power is 100%.
E.Gn	Control signal gain setting	1.0~10.0	1.0	The input control signal value is equal to the current gain value multiply by the input control signal value, for example, the value set by RS 485 is 250, the gain is set to 2, and the output power is 50%.
E.IE	Input control model setting	0~5	0	0:4-20mA Control；1:0~5V Control；2:0~10V Control；3:1-5V Control；4:RS 485 Control；5: Potentiometer Control
E.SH	Display setting	0~8	0	0: The voltage across UV, the voltage across VW, the voltage across UW and the three currents R,S and T are displayed in turn; 1: The voltage across UV, the voltage across VW and the voltage across UW are displayed in turn; 2: Display the current of R, S & T in turn; 3: Display the voltage at both ends of UV; 4: Display the voltage at both ends of VW; 5: Display the voltage at both ends of UW; 6: Display the current of R loop; 7: Display the current of S loop; 8: Display the current of T loop.
E.PC	Output method setting	0~1	0	0：Phase-shifted output；1: Power cycle output
E.Lt	Load type setting	0~1	0	0: Resistive load; 1 Transformer load mode
E.St	Soft start time setting	0~100	0	When the product is connected, output power will slowly rise to the set value.
E.So	Soft off time setting	0~100	0	When the product is turned off, output power will slowly drop to 0.
E.SU	Soft up time setting	0~100	0	When the input control signal is set from low to high, the output power will slowly rise to the set value.
E.Sd	Soft down time setting	0~100	0	When the input control signal is set from high to low, the output power will slowly drop to the set value.
E.no	Max. output proportion setting	0~100	100	When the setting value is 80, the Max. output power can only reach 80%.
E.SC	Max. constant current setting	5~200	0	For example, for 0-10V control, $I_{LOAD}=I_{AC}$ *$V_{CONTROL}$/10, I_{LOAD} indicates the load current, I_{AC} indicates the Max. constant current setting value, and $V_{CONTROL}$ indicates the analog signal of 0-10V.
E.Su	Max. constant voltage setting	50~380	0	For example, 0-10V control, $U_{LOAD}=U_{AC}$ *$V_{CONTROL}$/10, U^{LOAD} represents the load voltage, U_{AC} represents the Max. constant voltage setting value, $V_{CONTROL}$ represents the analog signal of 0-10V.
E.bo	Input bias setting	0~1000	0	The input control signal value is equal to the current set bias value plus the input control signal value, for example, the value set by RS 485 is 250, the offset value is 250, and the output power is 50%.
E.Ad	Correspondence address setting	1~254	1	The factory address is set to 1 by default.
E.CS	Communication parameter setting	300~314	300	Details of communication parameter settings are shown in table 1. The default value of the register is 300, if you want to change the communication parameters, such as: 9600, parity check, 1 stop bit, you only need to write 305 to the register, and then re-power on.
E.Co	Load current alarm setting	5~1000	0	When the load current exceeds the setting, the product output alarm signal.
E.CF	Current filter setting	0~7	4	Refer to the default setting
E.uF	Voltage filter setting	0~7	4	Refer to the default setting
E.Fo	Fan on setting	0~100	40	When the heatsink temperature is higher than 40 ° C, the fan starts to work.
E.FF	Fan off setting	0~100	30	When the heatsink temperature is lower than 30 ° C, the fan stops to work.
E.HA	Over temperature alarm setting	0~100	90	When the heatsink temperature is higher than the set value, the product displays over temperature alarm.

Register Introduction

KRH has 16 input registers and 23 hold registers, as defined in the table below.

Address	Input Register Name	Function	Save after power off
1	Fuse break alarm register	When it displays 1, it corresponds to the R circuit fuse being broken. 2and 4correspond to the S circuit and T circuit respectively. Normally, it displays 0.	No
2	Over temperature alarm register	It displays 1 when the heatsink exceeds the set temperature, and displays 0 normally	No
3	Over current alarm register	It displays 1 when the load exceeds the set current, and displays 0 when it is normal	No
4	Load break or SCR fault alarm register	It displays 1 when the load breaks or SCR breaks down, and displays 0 when it is normal	No
5	Load power failure alarm register	It displays 1 when the load power supply is disconnected, and displays 0 when it is normal	No
6	Load power supply phase loss alarm register	It displays 1 when the load power supply is in phase loss, and displays 0 when it is normal	No
7	Potentiometer control register	It's in potentiometer mode when the screen display value is ≥5.	No
8	RUN register	Control the operation status. The running state is displayed as 1, and the stop state is displayed as 0	No
16	R loop's output current display register	Display current value of R loop	No
17	S loop's output current display register	Display current value of S loop	No

Address	Input Register Name	Function	Save after power off
18	T loop's output current display register	Display current value of T loop	No
19	UV output voltage display register	Display the voltage value at both ends of UV	No
20	VW output voltage display register	Display the voltage value at both ends of VW	No
21	UW output voltage display register	Display the voltage value at both ends of UW	No
25	Heatsink temperature display register	Display the heatsink temperature	No
26	Load power frequency display register	Display the load power frequency	No

Address	Holding Register	Setting Value	Initial Value	Power Loss Protection
100	Output voltage setting register Control_in	0~1000(Output voltage: Set value /1000xU_{AC}^2, U_{AC}^2 indicates the power grid voltage)	0	Yes
103	Input control mode setting register Selec_input_REG	0~5	0	Yes
104	Load type setting register Selec_induc_res_REG	0~1	0	Yes
105	Switching control setting register On_Off_REG	0~1	0	Yes
106	Soft start setting register Soft_start_REG	0~100	0	Yes
107	Soft off setting register Soft_off_REG	0~100	0	Yes
108	Soft up setting register Soft_up_REG	0~100	0	Yes
109	Soft down set register Soft_down_REG	0~100	0	Yes
110	Control signal gain setting register Con_gain_REG	1.0~10.0	1.0	Yes
111	Max. output proportion setting register Output_max_REG	0~100	0	Yes
112	Max. constant current setting register Current_steady_REG	5~200	0	Yes
113	Max. constant voltage setting register Volt_steady_REG	50~380	0	Yes
114	The fan turns on setting register Temp_fan_on_REG	0~100	40	Yes
115	The fan turns off setting register Temp_fan_off_REG	0~100	30	Yes
116	Load type setting register Selec_angle_cycle_REG	0~1	0	Yes
117	Over temperature alarm setting register Temp_up_al_REG	0~100	90	Yes
118	Over load alarm setting register Curr_al_set_REG	5~200	0	Yes
119	Communication parameter setting register COM_SET_REG	300~314	300	Yes
120	Display mode setting register SHOW_SET_REG	0~8	0	Yes
121	Input bias setting register Input_offset_REG	0~1000	0	Yes
122	Communication address setting register Module_Address	1~254	1	Yes
123	Current filter set register Current_fillter_REG	0~7	4	Yes
124	Voltage filter setting register Voltage_fillter_REG	0~7	4	Yes

Register Introduction

The definition and usage description of input registers are as follows:

1) Fuse break alarm register (Add.:1)
Data format: a 16-bit unsigned integer

When it displays 1, it corresponds to the R circuit fuse being broken. 2 and 4 correspond to the S circuit and T circuit respectively. Normally, it displays 0.

The definition and usage description of output alarm registers are as follows

BIT2	BIT1	BIT0
T circuit fuse being broken	S circuit fuse being broken	R circuit fuse being broken

2) Over temperature alarm register (Add.:2)
Data format: a 16-bit unsigned integer

It displays 1 when the heatsink exceeds the set temperature, and displays 0 normally.

3) Over current alarm register (Add.:3)
Data format: a 16-bit unsigned integer

It displays 1 when the load exceeds the set current, and displays 0 when it is normal.

4) Load break or SCR fault alarm register (Add.:4)
Data format: a 16-bit unsigned integer

It displays 1 when the load breaks or SCR breaks down, and displays 0 when it is normal.

5) Load power failure alarm register (Add.:5)
Data format: a 16-bit unsigned integer
It displays 1 when the load power supply is disconnected, and displays 0 when it is normal.

6) Load power supply phase loss alarm register (Add.:6)
Data format: a 16-bit unsigned integer
It displays 1 when the load power supply is in phase loss, and displays 0 when it is normal.

7) Potentiometer control register (Add.:7)
Data format: a 16-bit unsigned integer
It's in potentiometer mode when the screen display value is ≥5.

8) RUN register (Add.:8)
Data format: a 16-bit unsigned integer
Control the operation status. The running state is displayed as 1, and the stop state is displayed as 0.

9) R loop's output current display register (Add.:16)
Data format: a 16-bit unsigned integer
Display current value of R loop,Its unit is 0.1A.

10) S loop's output current display register (Add.:17)
Data format: a 16-bit unsigned integer
Display current value of S loop,Its unit is 0.1A.

11) T loop's output current display register (Add.:18)
Data format: a 16-bit unsigned integer
Display current value of T loop,Its unit is 0.1A.

12) UV output voltage display register (Add.:19)
Data format: a 16-bit unsigned integer
Display the voltage value at both ends of UV,Its unit is 0.1A.

13) VW output voltage display register (Add.:20)
Data format: a 16-bit unsigned integer
Display the voltage value at both ends of VW,Its unit is 0.1A.

14) UW output voltage display register (Add.:21)
Data format: a 16-bit unsigned integer
Display the voltage value at both ends of UW,Its unit is 0.1A.

15) Heatsink temperature display register (Add.:25)
Data format: a 16-bit unsigned integer
Display the heatsink temperature.

16) Load power frequency display register (Add.:26)
Data format: a 16-bit unsigned integer
Display the load power frequency,Its unit is Hz.

The definition and usage description of holding registers are as follows:

1) Output voltage setting register Control_in (Add.:100)
Data format: a 16-bit unsigned integer
This register is used to control the output voltage of the load, with a control value range of 0-1000, corresponding to a load voltage of 0- grid voltage.

2) Input control mode setting register Selec_input_REG (Add.:103)
Data format: a 16-bit unsigned integer
When the register value is 0, it is 4-20mA control. When the register value is 1, it is 0-5V control. When the register value is 2, it is 0-10V control. When the register value is 3, it is 1-5V control. When the register value is 4, it is RS 485 control. When the register value is 5, it is potentiometer control. The factory default value is 0.

3) Load type setting register Selec_induc_res_REG (Add.:104)
Data format: a 16-bit unsigned integer
This register is a load type setting register. When the register value is 0, it controls the resistive load. When the register value is 1, it controls the transformer load mode.

4) Switching control setting register On_Off_REG (Add.:105)

When the product is in running state, the register value is 1, and when the product is in stopped state, the register value is 0.

5) Soft start setting register Soft_start_REG (Add.:106)

Data format: a 16-bit unsigned integer

When the product is connected, the output power will slowly increase to the set value, and the factory default value is 0.

6) Soft off setting register Soft_off_REG (Add.:107)

Data format: a 16-bit unsigned integer

When the product is turned off, the output power will slowly decrease to 0, and the factory default value is 0.

7) Soft up setting register Soft_up_REG (Add.:108)

Data format: a 16-bit unsigned integer

When the input control signal is set from low to high, the output power will slowly increase to the set value, and the factory default value is 0.

8) Soft down set register Soft_down_REG (Add.:109)

Data format: a 16-bit unsigned integer

When the input control signal is set from high to low, the output power will slowly decrease to the set value, and the factory default value is 0.

9) Control signal gain setting register Con_gain_REG (Add.:110)

Data format: a 16-bit unsigned integer

The input control signal value is: the current set gain value multiplied by the input control signal value. When the control value is set to 500 and the gain is set to 2, the output power is 100%. The default value of this register is set to 1, which means the gain is 1.

10) Max. output proportion setting register Output_max_REG (Add.:111)

Data format: a 16-bit unsigned integer

This register can set the maximum output power of the load output, for example, when the setting value is 80, the maximum output power can only reach 80%.

11) Max. constant current setting register Current_steady_REG (Add.:112)

Data format: a 16-bit unsigned integer

This register can set the maximum current output of the load. For example, when controlling from 0-10V, $I_{LOAD}=I_{AC} * V_{CONTROL}/10$, where I_{LOAD} represents the load current, I_{AC} represents the maximum constant current setting value, and $V_{CONTROL}$ represents the analog signal from 0-10V. The default value at the factory is 0.

12) Max. constant voltage setting register Volt_steady_REG (Add.:113)

Data format: a 16-bit unsigned integer

This register can set the maximum voltage output of the load. For example, when controlling from 0-10V, $U_{LOAD}=U_{AT} * V_{CONTROL}/10$, where U_{LOAD} represents the voltage across the load, U_{AC} represents the maximum constant voltage setting value, $V_{CONTROL}$ represents the analog signal from 0-10V, and the factory default value is 0.

13) The fan turns on setting register Temp_fan_on_REG (Add.:114)

Data format: a 16-bit unsigned integer

This register can be set to turn on the fan when the temperature of the heat sink reaches a certain temperature. If the set value is 50, the fan will start working when the temperature of the heat sink reaches 50 ℃. The factory default value is 40 ℃.

14) The fan turns off setting register Temp_fan_off_REG (Add.:115)

Data format: a 16-bit unsigned integer

This register can be set to turn off the fan when the temperature of the heat sink reaches a certain level. If the set value is 30, the fan will stop working when the temperature of the heat sink reaches 30 ℃. The factory default value is 30 ℃.

15) Load type setting register Selec_angle_cycle_REG (Add.:116)

Data format: a 16-bit unsigned integer

This register is a negative output mode setting register. When the register value is 0, it is a phase shifted output, and when the register value is 1, it is a cyclic output.

16) Over temperature alarm setting register Temp_up_al_REG (Add.:117)
Data format: a 16-bit unsigned integer
This register is an over temperature alarm setting register, and the threshold for over temperature protection can be changed by setting the value of this register. The factory default is 90 ℃.

17) Over load alarm setting register Curr_al_set_REG (Add.:118)
Data format: a 16-bit unsigned integer
This register is used to set the maximum value of the output current. When the current in the load circuit is greater than this value, the product outputs an alarm signal and the corresponding position 1 of the alarm register. When the register is set to 0, the function is turned off.

18) Communication parameter setting register COM_SET_REG (Add.:119)
Data format: a 16-bit unsigned integer
This register is used to set communication parameters, with a default value of 300. The value definitions are shown in the following table:

Register Value	Baud Rate	Data Bits	Check Bit	Stop Bit
300	9600	8 data bits	No check	2 Stop bits
301	19200	8 data bits	No check	2 Stop bits
302	38400	8 data bits	No check	2 Stop bits
303	57600	8 data bits	No check	2 Stop bits
304	115200	8 data bits	No check	2 Stop bits
305	9600	8 data bits	Even parity check	1 Stop bit
306	19200	8 data bits	Even parity check	1 Stop bit
307	38400	8 data bits	Even parity check	1 Stop bit
308	57600	8 data bits	Even parity check	1 Stop bit
309	115200	8 data bits	Even parity check	1 Stop bit
310	9600	8 data bits	Odd parity check	1 Stop bit
311	19200	8 data bits	Odd parity check	1 Stop bit
312	38400	8 data bits	Odd parity check	1 Stop bit
313	57600	8 data bits	Odd parity check	1 Stop bit
314	115200	8 data bits	Odd parity check	1 Stop bit

19) Display mode setting register SHOW_SET_REG (Add.:120)
Data format: a 16-bit unsigned integer
This register can control the display content of the product panel. The factory default value is 0, and the value is defined as follows:
0: UV voltage at both ends, VW voltage at both ends, UW voltage at both ends, and R, S, T current alternate star indication;
1: The UV voltage, VW voltage, and UW voltage are displayed alternately;
2: R, S, T 3-channel current wheel connected display;
3: Display the voltage at both ends of UV;
4: Display the voltage at both ends of VW;
5: Display the voltage at both ends of UW;
6: Display the current of the R circuit;
7: Display the current of the S circuit;
8: Display the current of the T circuit.

20) Input bias setting register Input_offset_REG (Add.:121)
Data format: a 16-bit unsigned integer
The input control signal value is: current input bias value+input control signal value. When the control value is set to 250 and the input bias value is 250, the output power is 50%. This register is set to a default value of 0.

21) Communication address setting register Module_Address (Add.:122)
Data format: a 16-bit unsigned integer
This storage can set the product communication address value, with a range of 1-254, and the default value at the factory is 1.

CRC Check

CRC check complies with Modbus,the following is a C language CRC check function:

The function uses two parameters:
unsigned char *puchMsg; Pointer to the buffer containing binary data messages for generation;
unsigned short usDstsLen; The number of bytes in the message buffer.

CRC generating function:

```
unsigned short CRC16(puchMsg,usDatalen)          /*function returns CRC as an unsigned short type*/
unsigned char *puchMsg;                          /*Message used to calculate CRC */
unsigned short usDataLen;                        /*The number of bytes in the message*/
{
      unsigned char uchCRCHI=0xFF;               /*High byte initialization of CRC*/
      unsigned char uchCRCLo=0xFF;               /*Low byte initialization of CRC*/
      unsigned uIndex;                           /*CRC query table index */
      while (usDataLen--)                        /*completes the entire message buffer */
           {
            uIndex=uchCRCLo^*puchMsgg++;         /*Calculate CRC */
            uchCRCLo=uchCRCHi^auchCRCHi[uIndex];
            uchCRCHi=uchCRCLo[uIndex];
           }
     return(uchCRCHi<<8|uchCRCLo);
}
```

High-Order Byte Table

```
static unsigned char auchCRCHi[] = {
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81,
0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0,
0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01,
0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81,
0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0,
0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01,
0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81,
0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0,
0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01,
0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81,
0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0,
0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01,
0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81,
0x40
};
```


Low-Order Byte Table

static char auchCRCLo[] = {

0x00, 0xC0, 0xC1, 0x01, 0xC3, 0x03, 0x02, 0xC2, 0xC6, 0x06, 0x07, 0xC7, 0x05, 0xC5, 0xC4,

0x04, 0xCC, 0x0C, 0x0D, 0xCD, 0x0F, 0xCF, 0xCE, 0x0E, 0x0A, 0xCA, 0xCB, 0x0B, 0xC9, 0x09,

0x08, 0xC8, 0xD8, 0x18, 0x19, 0xD9, 0x1B, 0xDB, 0xDA, 0x1A, 0x1E, 0xDE, 0xDF, 0x1F, 0xDD,

0x1D, 0x1C, 0xDC, 0x14, 0xD4, 0xD5, 0x15, 0xD7, 0x17, 0x16, 0xD6, 0xD2, 0x12, 0x13, 0xD3,

0x11, 0xD1, 0xD0, 0x10, 0xF0, 0x30, 0x31, 0xF1, 0x33, 0xF3, 0xF2, 0x32, 0x36, 0xF6, 0xF7,

0x37, 0xF5, 0x35, 0x34, 0xF4, 0x3C, 0xFC, 0xFD, 0x3D, 0xFF, 0x3F, 0x3E, 0xFE, 0xFA, 0x3A,

0x3B, 0xFB, 0x39, 0xF9, 0xF8, 0x38, 0x28, 0xE8, 0xE9, 0x29, 0x2B, 0xEB, 0xEA, 0x2A, 0xEE,

0x2E, 0x2F, 0xEF, 0x2D, 0xED, 0xEC, 0x2C, 0xE4, 0x24, 0x25, 0xE5, 0x27, 0xE7, 0xE6, 0x26,

0x22, 0xE2, 0xE3, 0x23, 0xE1, 0x21, 0x20, 0xE0, 0xA0, 0x60, 0x61, 0xA1, 0x63, 0xA3, 0xA2,

0x62, 0x66, 0xA6, 0xA7, 0x67, 0xA5, 0x65, 0x64, 0xA4, 0x6C, 0xAC, 0xAD, 0x6D, 0xAF, 0x6F,

0x6E, 0xAE, 0xAA, 0x6A, 0x6B, 0xAB, 0x69, 0xA9, 0xA8, 0x68, 0x78, 0xB8, 0xB9, 0x79, 0xBB,

0x7B, 0x7A, 0xBA, 0xBE, 0x7E, 0x7F, 0xBF, 0x7D, 0xBD, 0xBC, 0x7C, 0xB4, 0x74, 0x75, 0xB5,

0x77, 0xB7, 0xB6, 0x76, 0x72, 0xB2, 0xB3, 0x73, 0xB1, 0x71, 0x70, 0xB0, 0x50, 0x90, 0x91,

0x51, 0x93, 0x53, 0x52, 0x92, 0x96, 0x56, 0x57, 0x97, 0x55, 0x54, 0x94, 0x54, 0x9C, 0x5C,

0x5D, 0x9D, 0x5F, 0x9F, 0x9E, 0x5E, 0x5A, 0x9A, 0x9B, 0x5B, 0x99, 0x59, 0x58, 0x98, 0x88,

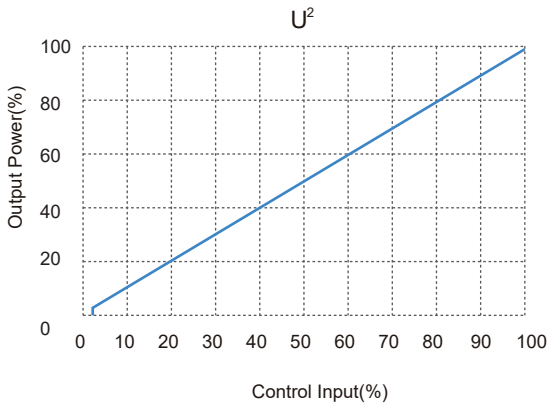
0x48, 0x49, 0x89, 0x4B, 0x8B, 0x8A, 0x4A, 0x4E, 0x8E, 0x8F, 0x4F, 0x8D, 0x4D, 0x4C, 0x8C,

0x44, 0x84, 0x85, 0x45, 0x87, 0x47, 0x46, 0x86, 0x82, 0x42, 0x43, 0x83, 0x41, 0x81, 0x80,

0x40

};

Output/Proportional and Mode Control Characteristics



General Notes

1. Please ensure the reliable connection of all terminals, loose wiring will cause abnormal heating and damage to the product.
2. Please ensure screws are torqued down properly (input (0.35-0.45) N·m, output (9-12) N·m).
3. This product has a built-in fault detection circuit, so the R, S and T loop must be connected to the phase line, and U, V & W must be connected to the load for proper operating. If the phase line and load are connected reversely, the product cannot work properly.
4. During use, it is necessary to ensure reliable grounding.
5. Except for replacing the fuse, it is forbidden to disassemble or modify the product without authorization.

! Warnings

1. The product's side panels may be hot, allow the product to cool before touching.
2. Disconnect all power properly before installing or working with this equipment.
3. Verify all connections properly before turning on the power.

