

Specification

Item	Min	Typical	Max	Unit	Note
AC Input Voltage	85	220	250	V	50/60Hz AC effective value
Output Voltage	0	---	1500	V	SDUC20-US
			2000		SDUC20-UM
Output Current	0	---	1.5	A	SDUC20-US
			3.0		SDUC20-UM
Continuous Output Power	0	---	1000	W	When ambient temperature is 25°C
Output Power which under forced air cooling condition	0	---	1500	W	
Peak Output Power	0	---	2250	VA	SDUC20-US
			6000		SDUC20-UM
Output Frequency	14000	20000	25000	Hz	
Output Frequency Adjustment Accuracy	1			Hz	
Output Waveform	Sine				
On Delay Time	0	0	10.00	s	
Pulse Output Time	0	0.5	10.00	s	
The Current of Control Output	0	---	200	mA	
The Voltage of Control Output	22	24	26	V	
Standby Power Consumption	5			W	
Load Type	Ultrasonic piezoelectric transducer				
Display Method	5			Digit	LED Digital Tubes
Ambient Temperature	0	25	40	°C	No Condensation
Ambient Humidity	10	60	85	%	
Storage Temperature	-20	25	85	°C	

Features

SDUC20-U is a controller specially designed for controlling piezoelectric ultrasonic transducer. Combined with the latest electronic technologies and elaborate design, the controller has the following typical features:

- Automatic searching resonant frequency of transducer and indicate the state by detune indicator on the control panel.
- Automatically track frequency and stabilize amplitude of transducer.
- Under amplitude is constant, the controller provides Timing Output mode and Constant Energy Output mode.
- The controller supports adjusting output voltage by remote analog signal.
- Supporting external trigger signal.
- Output power of controller changes automatically according to the load. Reduced output power at no load and increase output power after recognizing the load is connected to the controller.
- Password Lock: disable the value adjustment of all parameters except parameter"Output Voltage U" by setting password.
- Fanless design is advantage for improving controller life.

Toubleshooting Suggestions and Error Explanations

Error Code	Definition	Trouble shooting Methods
	Short Circuit	Make sure the output is not short. The fault phenomenon is appeared every time when output is started, please contact our technical support.
	Over Current	Reduce output voltage.
	Over Heat	Install the controller in a well-ventilated environment.
	Over Voltage	Reduce output voltage and make sure the load connected reliably.
	No Communication	Please contact our technical support.
	No Load	Make sure the load connected reliably.
	Magnetic bias of power output transformer	Restart power output of the controller.
	Self-check Error of Power circuit board	Please contact our technical support.

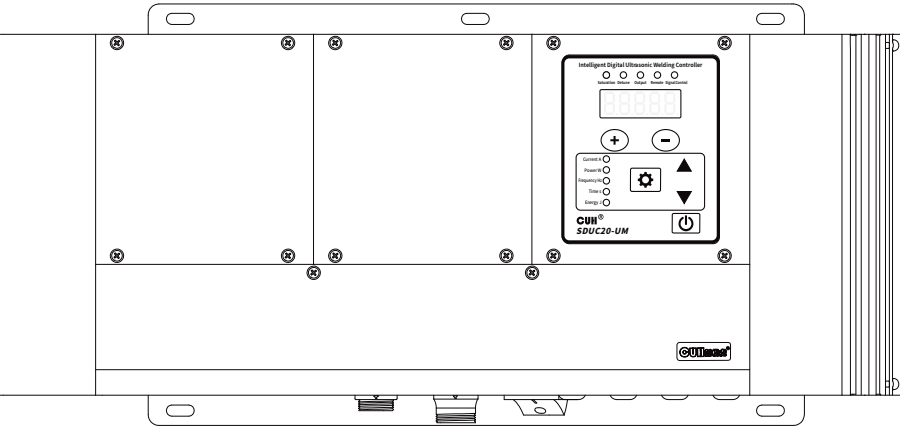
Operation and Using Method

Key Operation
Short press is defined as pressing the button for more than 0.1 seconds and less than 2 seconds. Long press is defined as pressing the button for more than 2 seconds.
Short press ▼ or ▲ to select parameter.
Short press ⊕ or ⊖ to adjust parameters.
Short press to switch between power and voltage of monitor parameters of standby interface.
Long press to enter Setting Parameters Interface.
Short press to turn on/off the power output.
Long press and ▲ simultaneously to enter Resonant Frequency Searching Interface. Save the resonant frequency result by press ⊕ and ⊖ simultaneously.

Using Method
1. Connect power output cable of the controller to the electrode of piezoelectric transducer. The blue wire of output cable is connected to ground electrode and the brown wire is connected to high voltage electrode. Make sure the wiring is correct, otherwise it will cause electric shock. The yellow-green wire is connected reliably to the Earth of installed equipment.
2. Connect the aviation plug of Power Output cable to the aviation socket of the controller. Connect the aviation plug of Power Input cable to the socket of the controller and connect the power input cable to the mains jack.
3. Turn on Power Switch and long press and ▲ to enter Searching Resonant Frequency Interface. Under the parameter F Display Interface, press ⊕ to start Upward Frequency Searching and press ⊖ to start Downward Frequency Searching.
4. When the Detune indicator is off and SUCCE is displayed on the screen , the resonant frequency has search successfully. You could continue to search for other resonant frequency by press ⊕ or ⊖, and select the best one according to the work effect of different resonant frequency. Press ⊕ and ⊖ simultaneously to save the resonant frequency result, and FSAVE is displayed on the screen. After a while, the controller can automatically return to standby interface, and press again to start output.
5. Press ⊕ or ⊖ to adjust parameter U for setting work voltage of transducer under standby interface.
6. Default Setting Restoration
● Select Default Setting Restoration parameter in Setting Parameters Interface and is flashing.
● Press ⊕ until is displayed and release ⊕ to finish default setting restoration and the controller return to Standby Interface.

Work Mode Explanation
Continuous Output Mode: the controller output power continuously to transducer.
Timing Mode: Controller output constant amplitude for fixed time when Port C receive trigger signal.
Constant Energy Mode: Controller output constant Energy when Port C receive trigger signal.

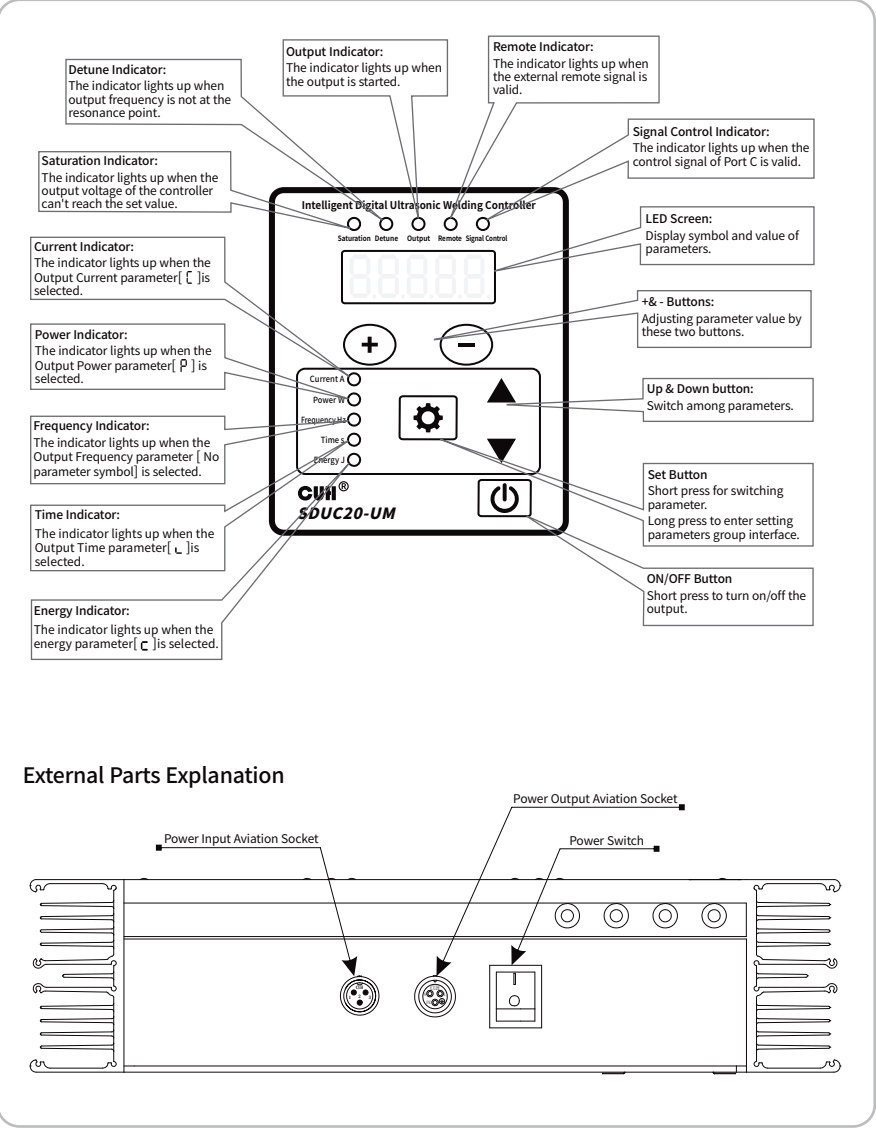
Intelligent Digital Ultrasonic Welding Controller



Applicable controller models:
SDUC20-US (1500V/1.5A)
SDUC20-UM (2000V/3A)

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Indicator, Key and External Parts explanation



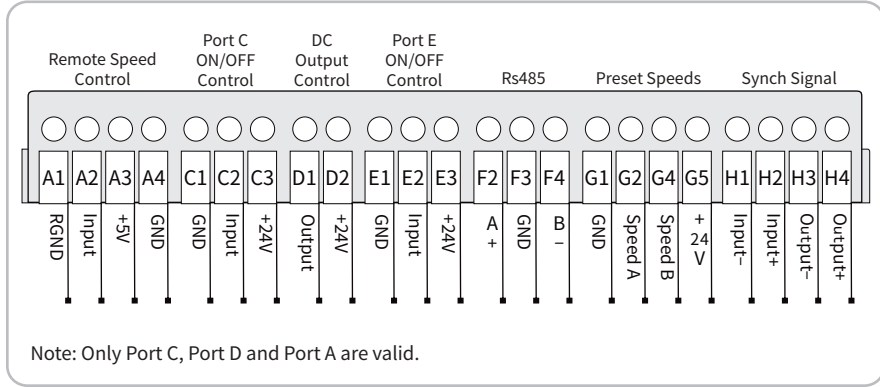
Function Parameters Table

	Definition	Symbol	Range	Default
Standby Parameters	Output Power	* P 8888	0~6000 W	
	Output Current	* C 8888	0.00~3.00 A	
	Output Frequency	* 8888	14000~25000 Hz	
	Output Time	* L 8888	0.00~1.00 s	
	Output Energy	* E 8888	0~9999 J	
	Active Resistance	* r 8888	0~9999 Ω	
	Output Voltage	U 8888	0~2000 V	500
	Actual Measured Output Voltage	* U. 8888	0~2000 V	
	Output Active Voltage	* P. 8888	0~2000 V	
	Frequency of Automation Searching Frequency	* F 8888	14.00~25.00 KHz	
Searching Frequency parameters	Voltage of Automation Searching Frequency	d 8888	0~2000 V	300
	Impedance Threshold	n 8888	1~9999 Ω	700
	Upper limit of Frequency in Automation Searching Frequency process	u 8888	14.00~25.00 KHz	25.00
	Lower limit of Frequency in Automation Searching Frequency process	u 8888	14.00~25.00 KHz	14.00
	Enter Password	7 8888	0~9999	0
	Work Mode	n 8888	<div>Continuous Output Mode</div> <div>Timing Mode</div> <div>Constant Energy Mode</div> <div>Automatic Trigger Timing Mode</div> <div>Automatic Trigger Constant Energy Mode</div>	Continuous Output Mode
Setting Parameters	Timing Trigger Time	L 8888	0.00~10.00 s	0.50

	Definition	Symbol	Range	Default
Setting Parameters	Setting Energy	E 8888	0~9999 J	100
	ON delay time of Port C	J 8888	0.0~10.0 s	0.0
	Logical Direction of Port C	r 1 8888	1 1 --- Normal Close	Normal Close
			1 1 --- Normal Open	
	Output Logical Direction of Port D	r 3 8888	3 3 --- Normal Close	Normal Close
			3 3 --- Normal Open	
	Tolerance of Current Alarm	r 8888	0.1~10.0 A	0.2
	Sensitivity of Automation Trigger	H 8888	-100~0	0
	Phase Difference	P 8888	-180~180 °	0
	Upper limit of Frequency	* 8 8888	14.00~25.00 KHz	
	Frequency Proportion	FP 8888	0~999	10
	Frequency Integral	FI 8888	0~999	0
	Amplitude Proportion	AP 8888	0~999	100
	Amplitude Integral	AI 8888	0~999	1
	Maximum Output Current	C 8888	0.00~1.50 A	1.00 (SDUC20-US)
			0.00~3.00 A	2.00 (SDUC20-UM)
	Remote coefficient (Voltage)	r 8888	100~1500	1000 (SDUC20-US)
			100~2000	1500 (SDUC20-UM)
	The version for PCB of control	* Ur 8888		
	The version for PCB of Power	* Ur 8888		
	Password Setting	7 8888	0~9999	0
	Default Setting Restoration	88888	---	---

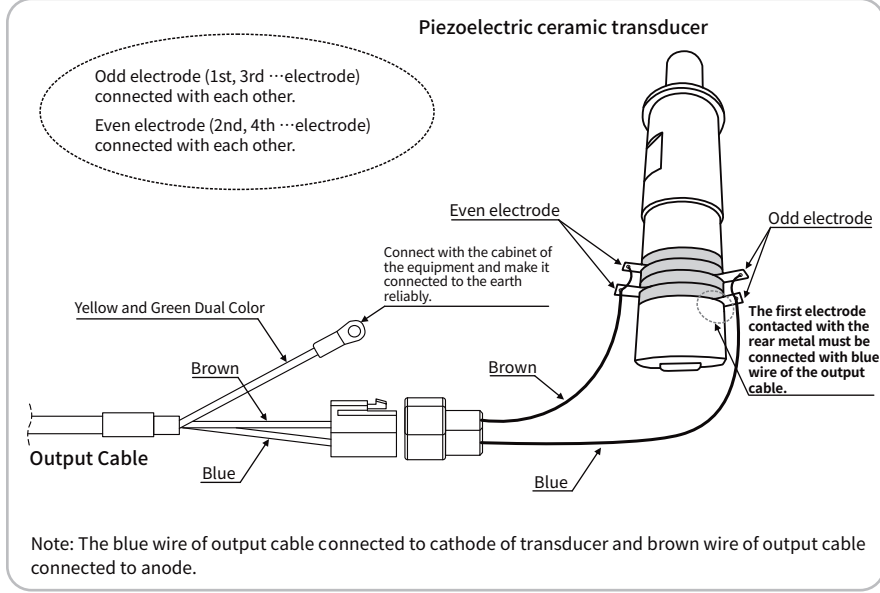
Note: The parameters with symbol * can't be adjusted and only used to indicate the work state of controller.
Italic parameters to be developed.

Wiring Ports Explanation



Note: Only Port C, Port D and Port A are valid.

Wiring Diagram of Load



Note: The blue wire of output cable connected to cathode of transducer and brown wire of output cable connected to anode.