

SK-24

Operation Manual

Ver.2401



FORWEL

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I. Outline and Features

1. Outline

- SK-24 is a constant-alternating current resistance weld control which has easy setting function, operation and which controlled with F.D.S.P (Full Digital Set-up Parameter) by micro-computer.
- The new SK-24 is possible applied to all large-capacity resistance welders for prevention of splash, Spot, Twin head spot, Seam & Brazing and Flash butt welder etc. by plating seam treatment by shear electric current and heat treatment effect by rear electric current as being adoption with second stage electromagnetic type by 10 welding condition.

2. Features

- This is multi-functional controller which is applicable for all resistance welders, such as Spot welder, Projection welder, Portable welder, Seam welder, Brazing welder and Flash butt welder.
- Indicates the schedule set No., set time, welding current, current monitor, etc., with 7-segment LED.
- Can store up to 10 schedules according to the materials and thickness of the workpieces to be welded.
- Has weld counters to indicate the quantity of products and others.

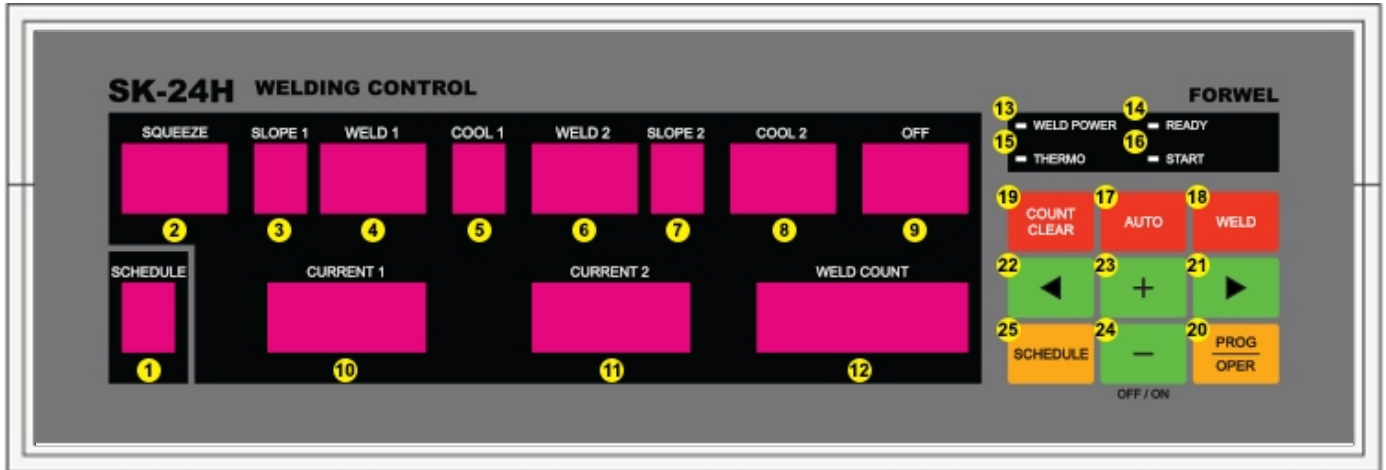
II. Specifications

1. Specifications

MODEL		SK-24V, SK-24H
Welding power source		200~240VAC and 380~480VAC
Control power source		100~240VAC
Frequency		50/60Hz
Indication		7-Segment LED Display
Operation mode		Spot, 2 Head Spot, Seam&Brazing, Flash butt
Weld counter		0..9999 counts
Program parameters	Schedule	0..9 schedules
	Squeeze	0..99 cycles
	Up slope	0..9 cycles
	Weld 1	0..99 cycles
	Cool 1	0..9 cycles
	Weld 2	0..99 cycles
	Down slope	0..9 cycles
	Cool 2	0..99 cycles
	Off	0..99 cycles
	Current 1	0.0 to 99.9%
	Current 2	
Control method		Phase control by thyristor
Operation mode input		Mode switch 1, Mode switch 2
Start input		Start 1, Start 2
Thermo switch input		Thyristor & Transformer thermo switch
Hold end output		Relay contact output, One short(0.2 sec)
Pressure valve output		Solenoid Valve 1, Valve 2 Output Control Voltage Output (100 to 240VAC)
Memory retention		More than 10 years after power failure
Ambient temperature		-10 to 55 °C
Storage temperature		-25 to 65 °C
Ambient humidity		35% to 85% RH
Dimensions	SK-24V	85mm(W) x 260mm(H) x 207mm(D), 3.3"(W) x 10.2"(H) x 8.1"(D)
	SK-24H	260mm(W) x 85mm(H) x 207mm(D), 10.2"(W) x 3.3"(H) x 8.1"(D)

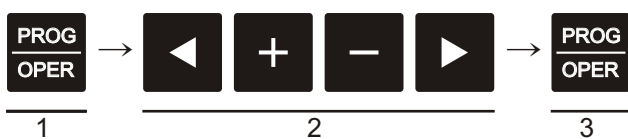
III. Name and Function of each section

1. Front panel



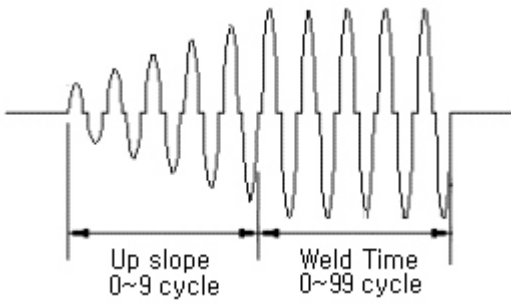
- | | |
|---|--|
| <ol style="list-style-type: none"> 1. SCHEDULE : 0..9 schedule 2. SQUEEZE : 0..99 cycle 3. SLOPE1 : 0..9 cycle ** 4. WELD1 : 0..99 cycle 5. COOL1 : 0..9 cycle 6. WELD2 : 0..99 cycle 7. SLOPE2 : 0..9 cycle *** 8. COOL2 : 0..99 cycle 9. OFF : 0..99 cycle 10. CURRENT1 : 0.0 to 99.9% 11. CURRENT2 : 0.0 to 99.9% 12. WELD COUNT : 0..9999 count | <ol style="list-style-type: none"> 13. WELD POWER lamp
:Illumination for weld power ON. 14. THERMO lamp
:Illumination for temperature switch ON. 15. START lamp
:Illumination when start switch 1,2 operated. 16. READY lamp
SOURCE ON + TEMP ON + WELD ON
= READY lamp ON 17. AUTO (Auto/ Manual) button
LED ON = Auto
LED OFF = Manual 18. WELD (Weld / Test) button
LED ON = Weld
LED OFF = Test 19. Weld count clear button 20. Operation / Program button
: To select the program and operation mode. 21. ► Button : Preset position to right 22. ◀ Button : Preset position to left 23. + Button : Data increment 24. - Button : Data decrement 25. SCHEDULE (Weld schedule) button
:Press to increase the schedule No. by 1. |
|---|--|

Squeeze, Slope1, Weld1, Cool1, Weld2, Slope2, Cool2, Off, Current1, Current2 Setting

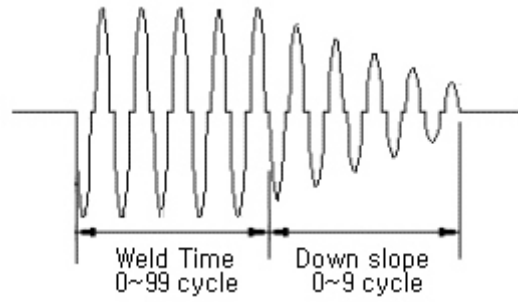


1. The indicator is blinked when press the button, "PROG"
2. Change the value for setting by using the button, "►,+, -, ◀"
3. Complete the setting pressing the button, "PROG"

**Slope1



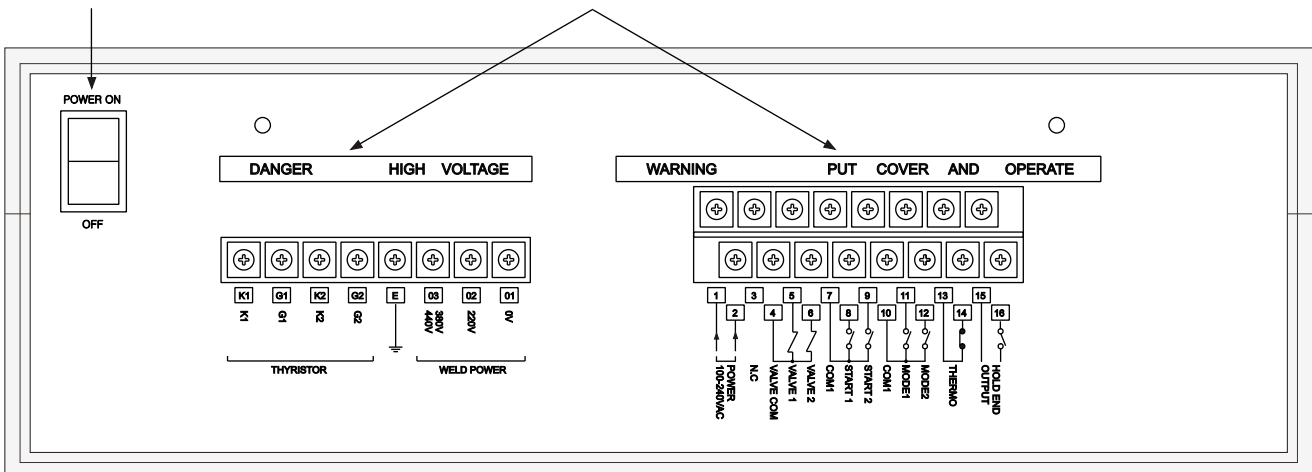
***Slope2



2. Rear panel

① Control power switch

② Power supply & Input / Output signal terminal block



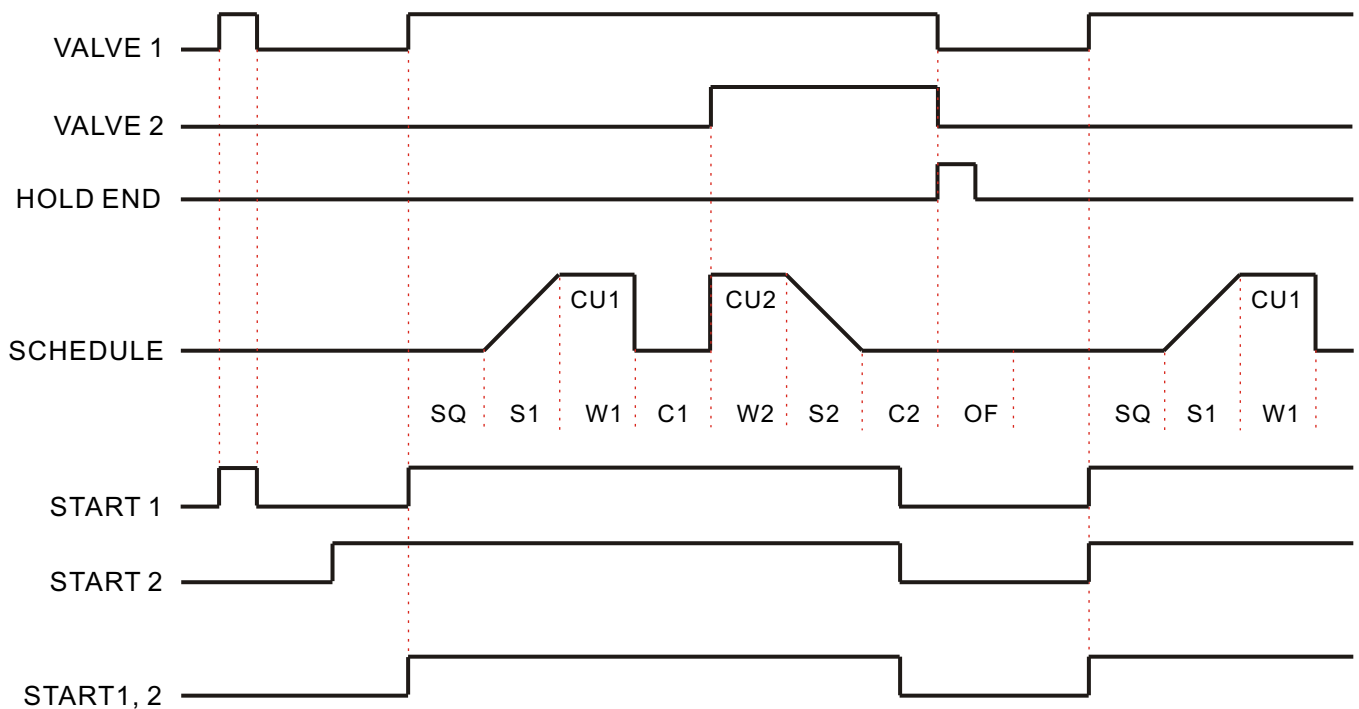
3. Operations

Operation	Mode switch		Schedule	Remarks
	Mode1	Mode2		
Spot welder	OFF	OFF	0 ~ 9	
Twin head spot welder	ON	OFF	1	START1
			2	START 2
Seam welder	OFF	ON	0 ~ 9	Slope 2 = 0
Brazing welder				Slope 2 = 1~9 Slope 2 is pulsation
Flash butt welder	ON	ON	0 ~ 9	

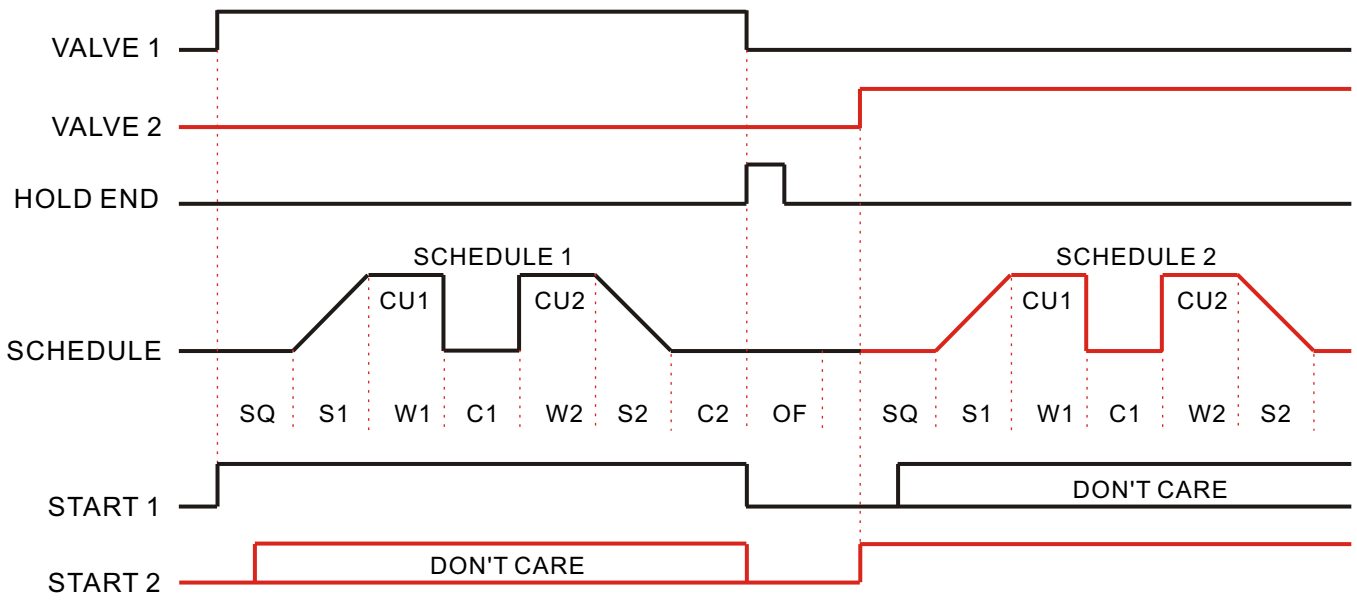
Parameters

Weld schedule	Squeeze time	Slope1 time	Weld1 time	Cool1 time	Weld2 time	Slope2 time	Cool2 time	Off time	Current1	Current2
SCH	SQ	S1	W1	C1	W2	S2	C2	OF	CU1	CU2
0~9	0~99 cycle	0~9 cycle	0~99 cycle	0~9 cycle	0~99 cycle	0~9 cycle	0~99 cycle	0~99 cycle	0.0~99.9%	0.0~99.9%

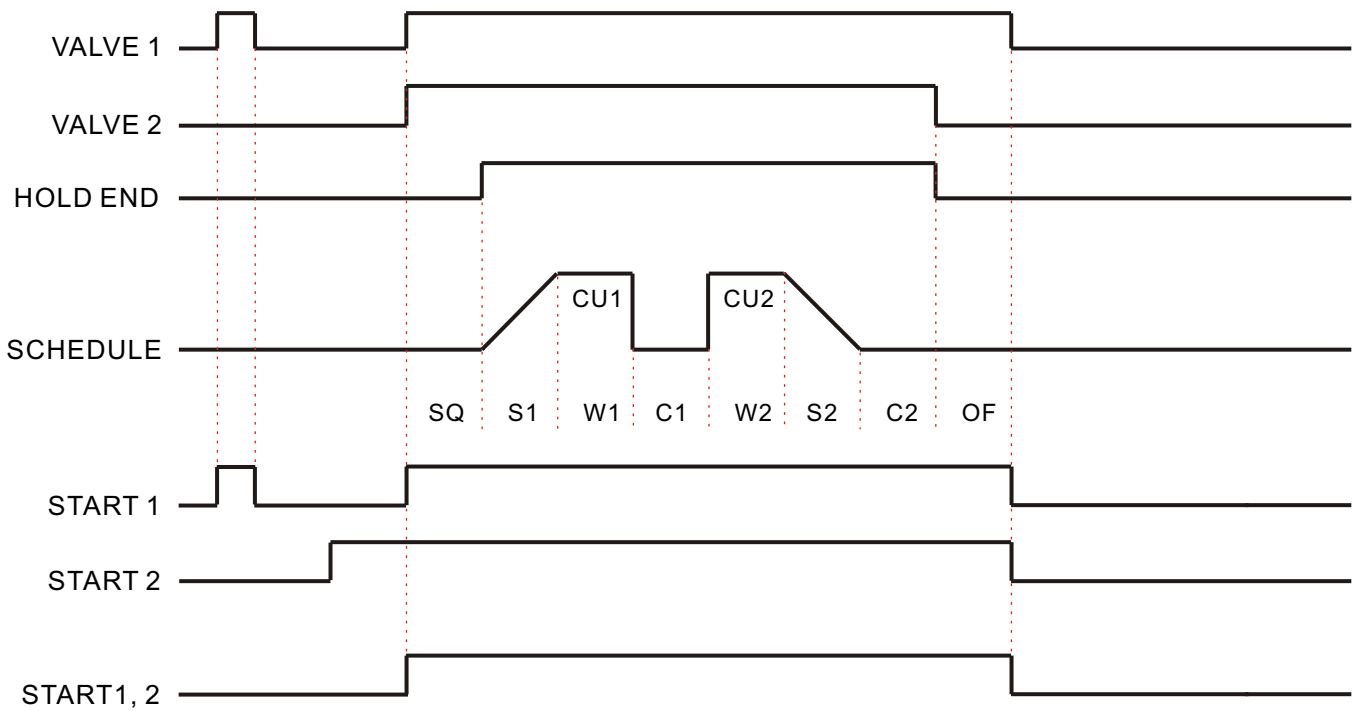
Spot welder (Mode1 : OFF, Mode2 : OFF)



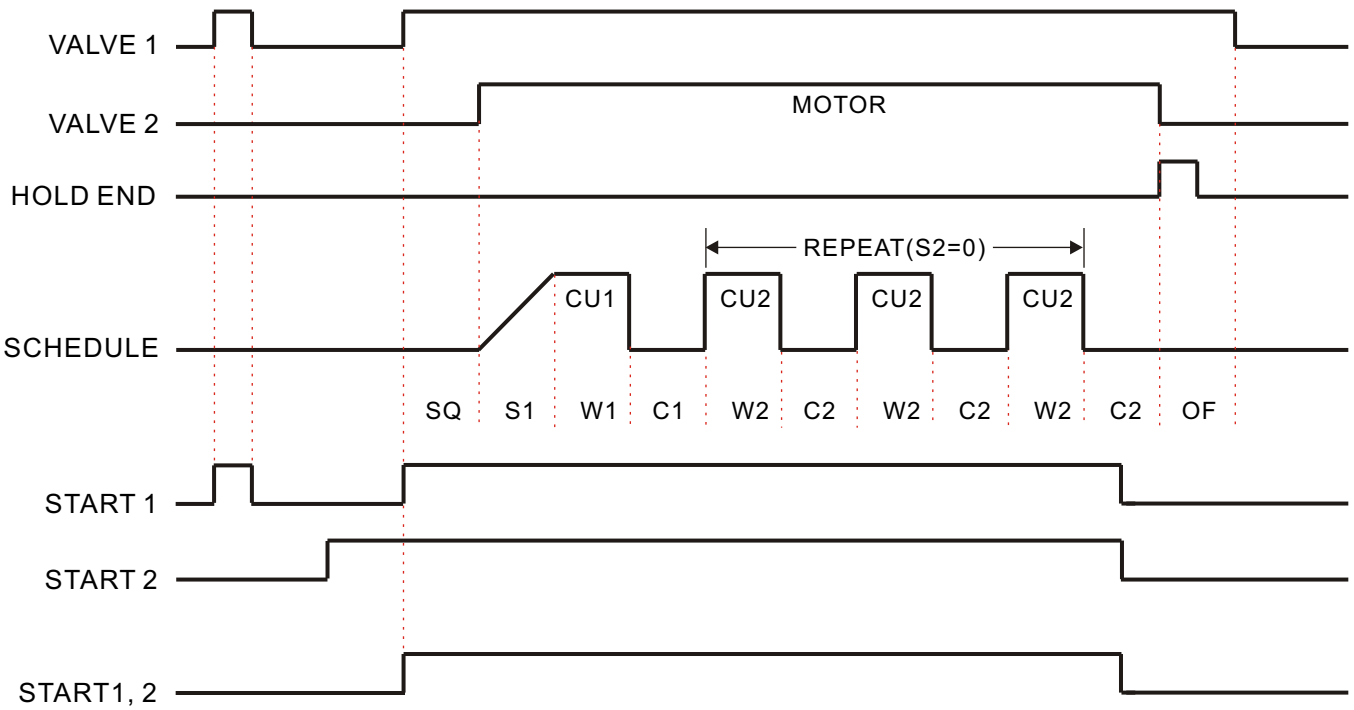
Twin head spot welder (Mode1 : ON, Mode2 : OFF)



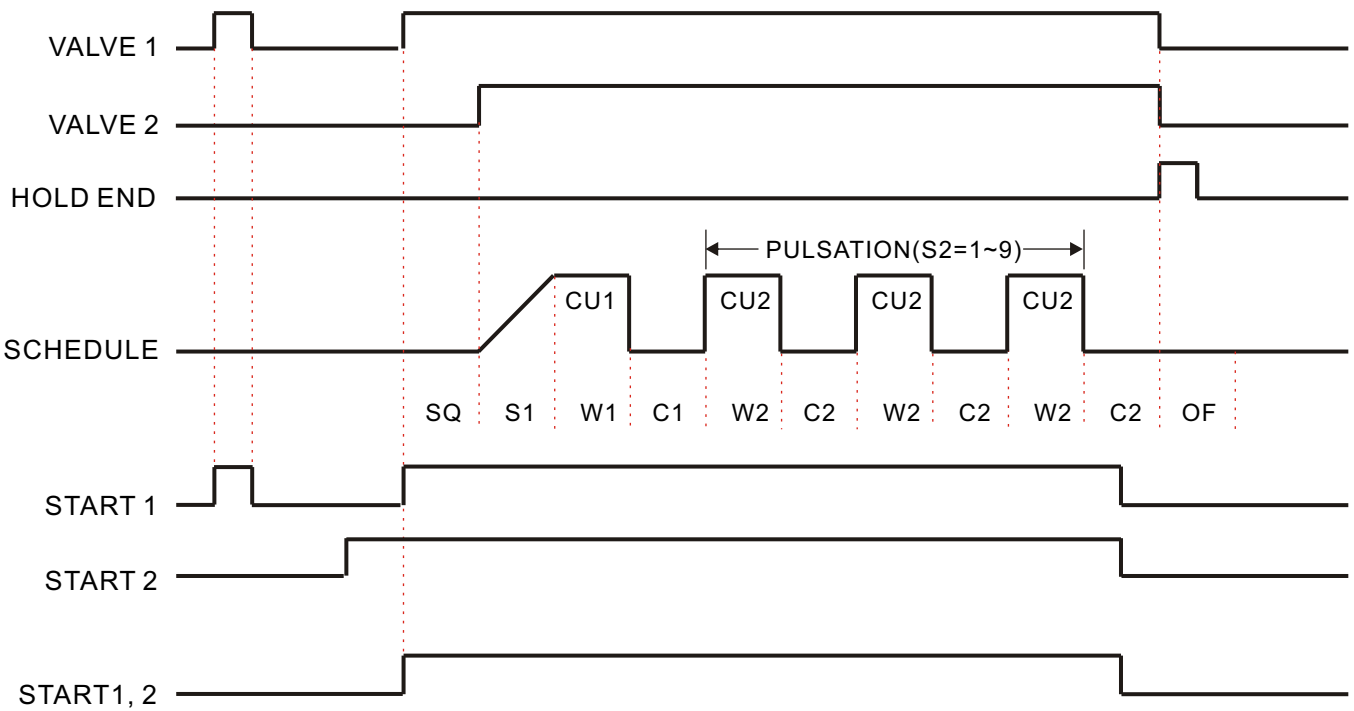
Flash butt welder (Mode1 : ON, Mode2 : ON)



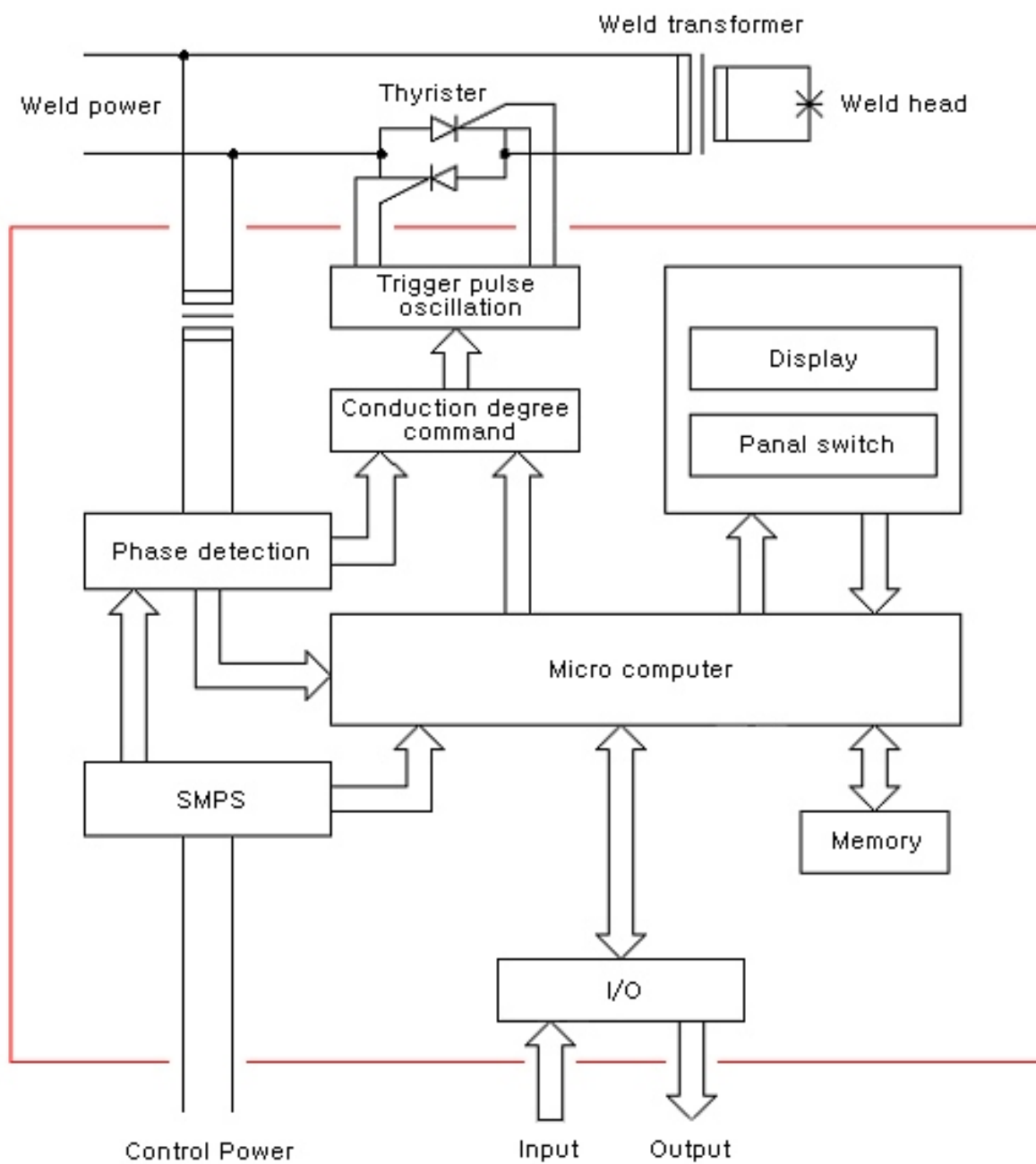
Seam welder (Mode1 : OFF, Mode2 : ON)



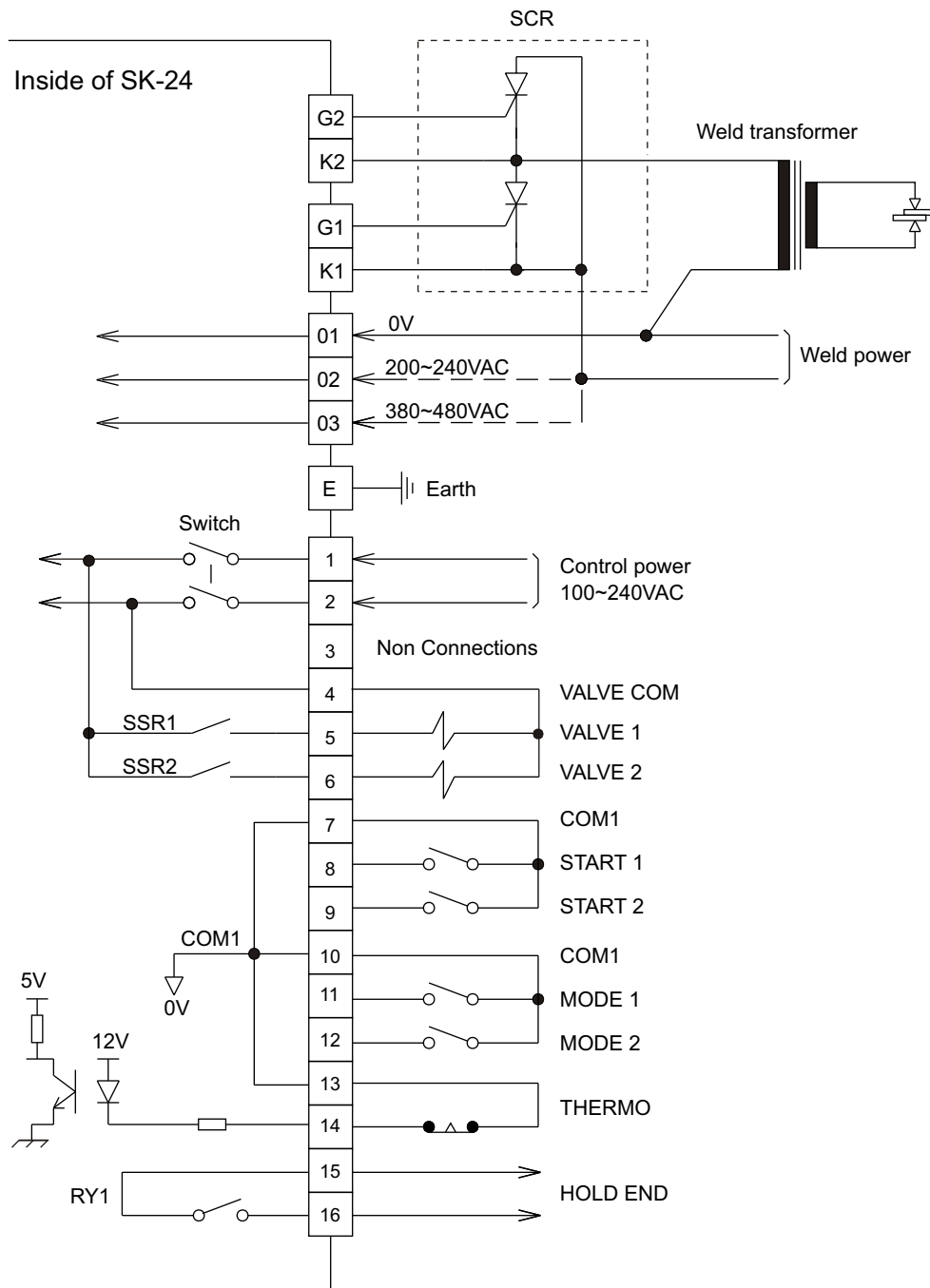
Brazing welder (Mode1 : OFF, Mode2 : ON)



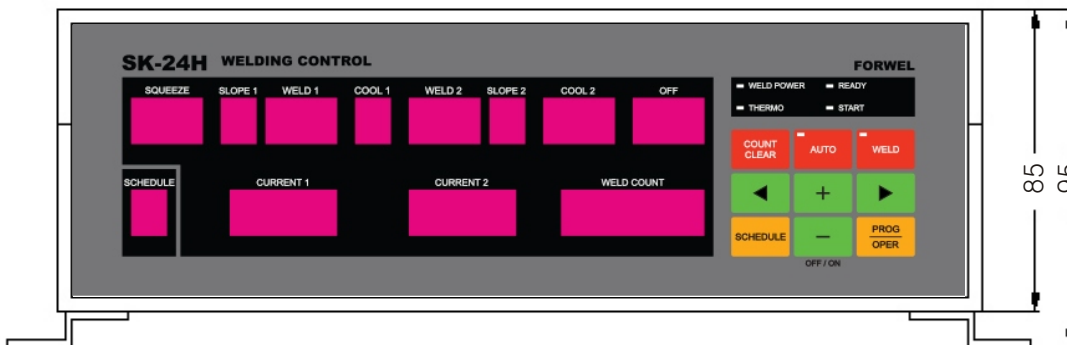
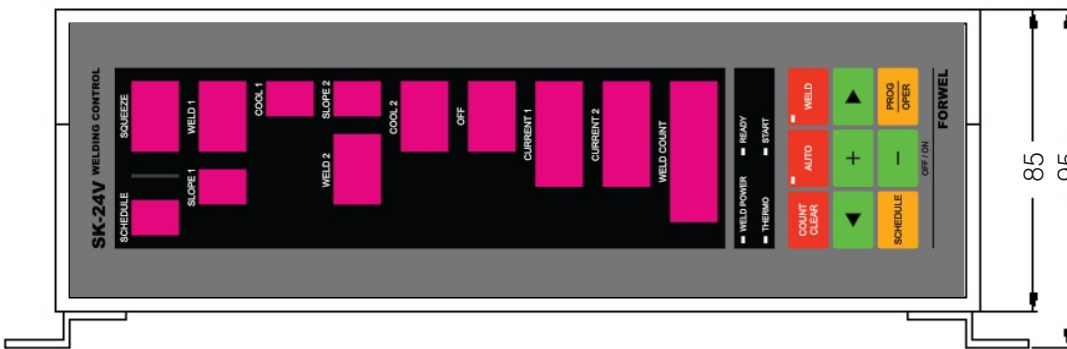
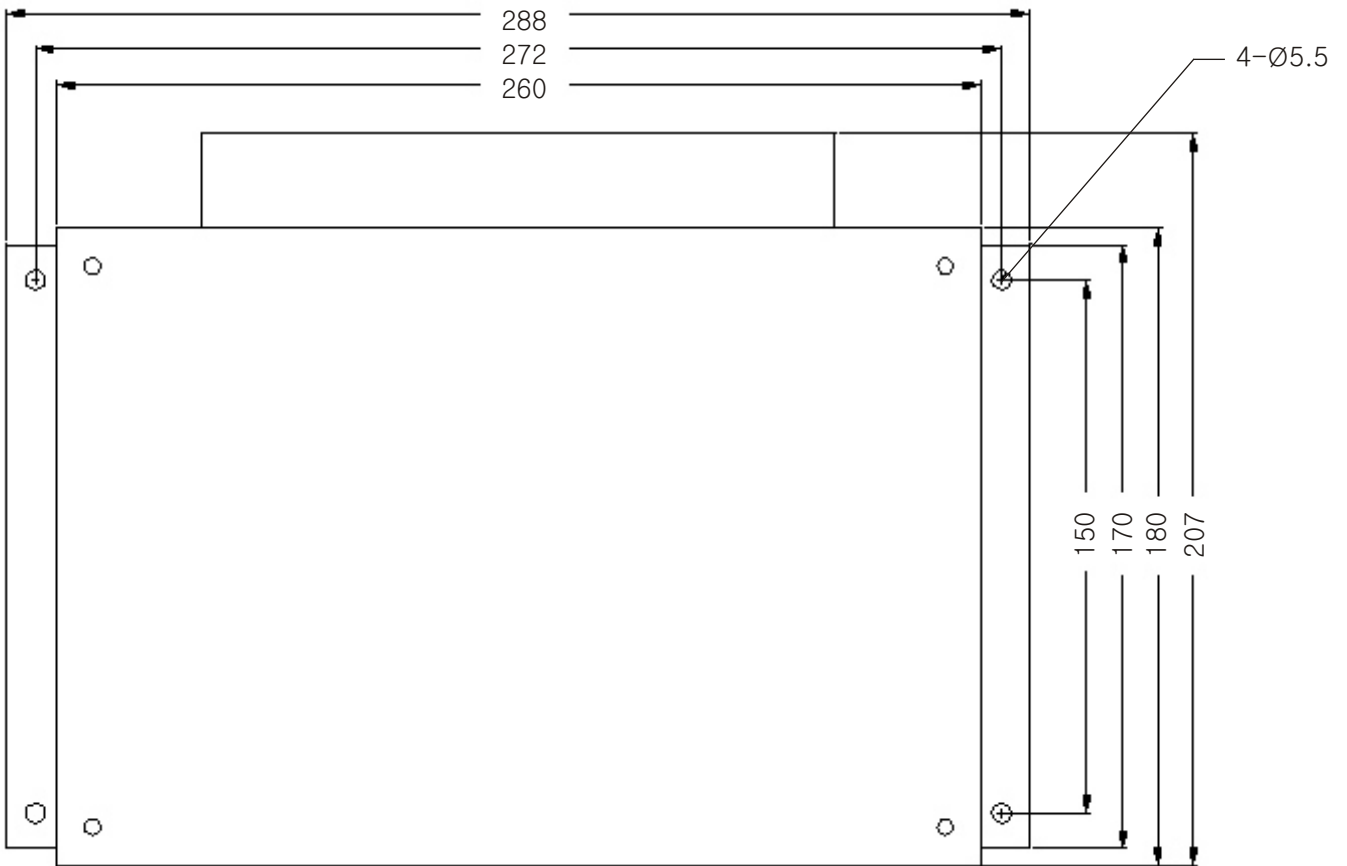
4. Block diagram



5. Connections



6. Dimensions (unit : mm)



IV. Considerations for use

1. Precautions on operating environment

The SK-24 should not be used in the following environments :

- 1) In atmosphere of high temperature and high humidity
- 2) Environment affected by vibration or impact
- 3) In chemical atmosphere or in areas directly affected by chemicals
- 4) Near a high-frequency noise-generating source.

2. Precautions for installation

- 1) Confirm that the control are installed (fixed) securely to the specified places.
- 2) Do not apply a source voltage higher than the rated value.
- 3) Ground the machine securely for the safety matters of operators.

3. Other precautions

- 1) Wipe off dirt from the controller exterior with a dry cloth.

Do not wipe controller with a wet towel. It may cause malfunction.

- 2) Do not push the touch keys on the front panel with a pointed instrument such as a screwdriver.

- 3) Do not disassemble or modify the controller.

We are not responsible for any trouble caused by disassembly or modification.

V. Schedule data table

1. Schedule data table

SCHEDULE	0	1	2	3	4	5	6	7	8	9
SQUEEZE										
SLOPE1										
WELD1										
COOL1										
WELD2										
SLOPE2										
COOL2										
OFF										
CURRENT1										
CURRENT2										