



Developed for highly dependable welding
High Speed Response
WELD TIMER

Model: **TETRA-222H/222V**

— Meeting all the high precision needs in spot welding —

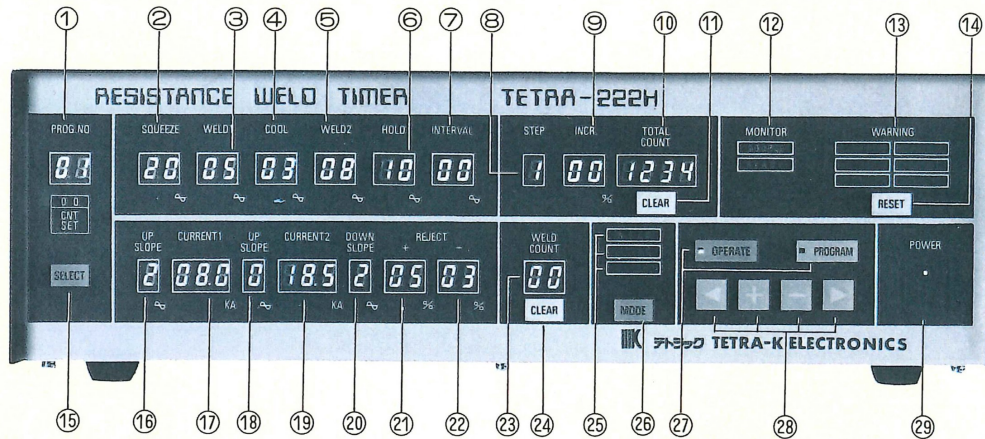


- ★ Constant Current Control offers the secondary current feedback system, half cycle control, and Power Voltage Fluctuation Compensation Control offers Half Cycle High Speed Response feature.
- ★ Current Values Monitor (Upper/Lower Limit Judgment), Weld Count Monitor, and various operation monitors are available, and when troubles occur warning signals are immediately given.
- ★ All the schedules are displayed in easy-to-read green LEDs, and schedule programming or selection of operations are quickly done with the key switches.

Now you can do spot welding in ideal conditions!

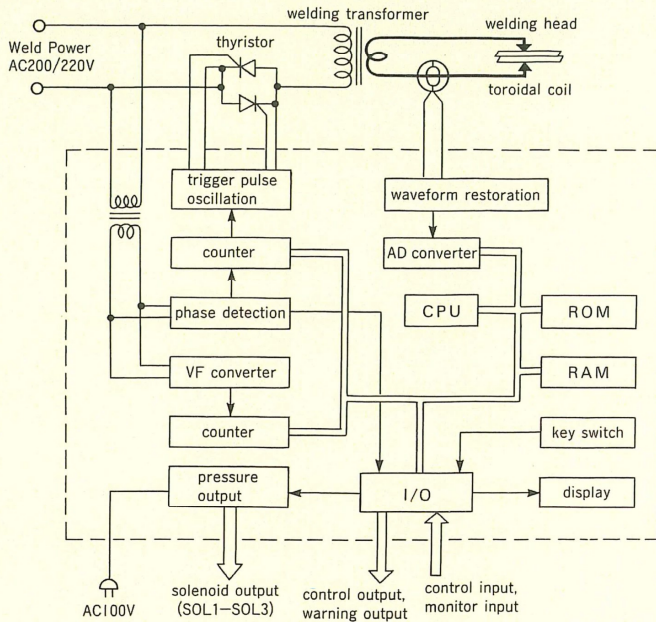
As you know, the spot welding is now widely used in many industries. High productivity, high welding quality are constantly required, and TETRA-222H/222V RESISTANCE WELD TIMER meets the exact welding needs of the industries.

Front Panel
TETRA-222H



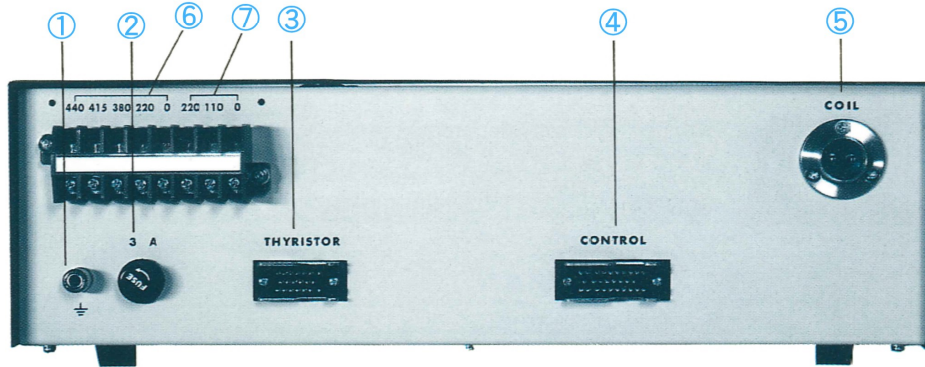
- ① **PROG NO**
Shows program schedule number.
- ② **SQUEEZE**
Shows Squeeze set values.
- ③ **WELD 1**
Shows Weld 1 cycles set values.
- ④ **COOL**
Shows cool cycles set values.
- ⑤ **WELD 2**
Shows weld 2 cycles set values.
- ⑥ **HOLD**
Shows hold cycles set values.
- ⑦ **INTERVAL**
Shows interval cycle values of repeat welding. When repeat is not done, be sure to set it to "00".
- ⑧ **STEP**
Shows step values of step up current.
- ⑨ **INCR**
Shows step up current increasing ratio in percentage.
- ⑩ **TOTAL COUNT**
Shows numbers of welds. In programming mode, it is used to set step up counting values.
- ⑪ **CLEAR key**
Used to clear TOTAL COUNT display figures.
- ⑫ **MONITOR**
"SOURCE" lights when the welding power is fed.
"READY" lights when welding is ready.
- ⑬ **WARNING**
"THYRISTOR" lights when the thyristor is short-circuited.
"NO CURR" lights when no current is detected.
"COUNT" lights when number of welds is short.
"THERMO" lights when the thermostat is open.
"CURRENT" lights when the abnormal current runs.
"STEP END" lights when step up is completed.
- ⑭ **RESET key**
Resets WARNING lamps.
- ⑮ **SELECT key**
Changes the welding schedules.
- ⑯ **UP SLOPE**
Shows up slope set values of Weld 1.
- ⑰ **CURRENT 1**
In setting, it shows Weld 1 set values, and after welding, it shows the current values that ran.
- ⑱ **UP SLOPE**
Shows up slope set values of Weld 2.
- ⑲ **CURRENT 2**
Shows Weld 2 set values in setting, and after welding it shows the current values that ran.
- ⑳ **DOWN SLOPE**
Shows down slope set values.
- ㉑ **REJECT +**
Shows upper limit values of controlled current and after welding the weld current (+) against Current 2 set values in percentage.
- ㉒ **REJECT -**
Shows lower limit values of controlled current and after welding the weld current (-) against Current 2 set values in percentage.
- ㉓ **WELD COUNT**
Shows number of welds set first and at the start of welding it shows 00, then shows number of welds
- ㉔ **CLEAR key**
Clears WELD COUNT figures and resets weld count error.
- ㉕ **MODE display**
"WELD" does normal welding.
"PRESS" pressure without weld.
"TEST" test run mode without weld.
- ㉖ **MODE key**
Selecting key of above modes.
- ㉗ **OPERATION key**
"OPERATE" switches from program mode to operation mode.
"PROGRAM" switches from operation mode to program mode.
- ㉘ **PROGRAMMING keys**
▷ used to move the program items.
◁ used to move the program items in reverse direction.
+ increase the set values.
- decrease the set values.
- ㉙ **POWER SWITCH**

Block Diagram

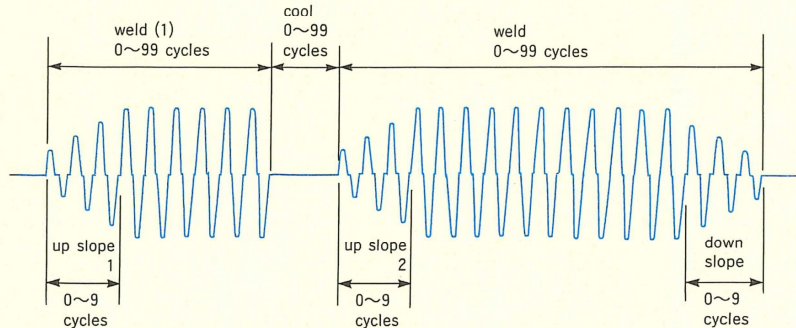


Rear Panel TETRA-222H

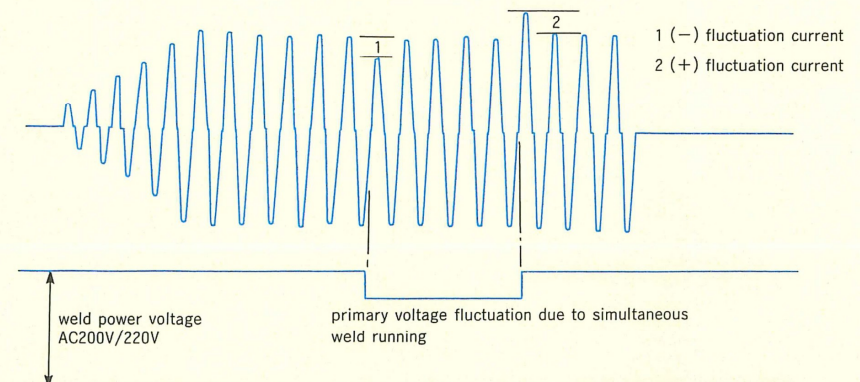
- ① **Grounding Terminal**
Grounding terminal for safety.
- ② **Fuse**
For AC100V circuitry (control circuitry and solenoid valves).
- ③ **Thyristor Connector**
For synchronous AC200/220V input and thyristor conduction output.
- ④ **Control Connector**
For AC100V/110V input and control input/output cable.
- ⑤ **Coil Connector**
Connects the toroidal coil for secondary current feedback.
- ⑥ **Welding Power**
440/415/380/220V
- ⑦ **Control Power**
AC110/220V



Basic welding current waveform



Constant current response waveform



Specifications

	Model: TETRA-222H/222V
Timer Settings	15 schedules LED display a) Squeeze (SQ), Weld 1 (W1), Cool (C), Weld 2 (W2), Hold (HO), Interval (ITV): 00–99 cycles b) Upslope (UP1), Upslope (UP2), Downslope (DS): 0–9 cycles
Current Settings (Constant Current Control)	15 schedules LED display a) 01.0~80.0KA (Toroidal coil TCS-1G) b) 0.10~8.00KA (Toroidal coil TCS-10G) can be set in 20%–100% of welder's maximum current
Current Settings (Voltage Fluctuation Compensation)	15 schedules LED display 30°~140° control with setting range of 000~999
Control Response	a) constant current control: 1/2 cycle b) voltage fluctuation : 1/2 cycle c) initial response : 2 cycles
Constant Current Accuracy	a) power voltage fluctuation: within $\pm 2\%$ to $\pm 10\%$ b) resistance load fluctuation: within $\pm 2\%$ to $\pm 10\%$ c) induction load fluctuation: within $\pm 2\%$ to $\pm 10\%$
Voltage Fluctuation Accuracy	within $\pm 3\%$ to $\pm 10\%$ fluctuation (values to full scale)
Pressure Schedules	3 schedules AC100V output by triac control (maximum 1A)
Step-up	1 schedule LED display, max. 9 steps with total counter of 0–9999.
Step-up Ratio	9 steps LED display 00~+99%
Current Monitor	$\pm\%$ control values, LED display, 15 schedules, $\pm 00\sim 99\%$ error contact output
Number of Weld Monitor	1–99 times 1 schedule LED display
Interlock Input	while this input is closed, the relay is held to wait for weld. as weld stops.
Interlock Output	closes the relay 2 cycles before weld and opens it immediately.
Error Output	when the following errors are detected, error relay is closed and it is displayed. a) thyristor is short. b) thermostat is tripped. c) no current, toroidal coil is broken. ----- d) short of number of welds e) step-up completed f) abnormal welding current
Power Consumption	less than 10W (when there is no solenoid output)
Ambient Temperature	0°~45°C
Control Power	AC 220 / 110 V $\pm 10\%$ 50Hz, 60Hz automatically selected
Welding Power	AC 440 / 415 / 380 / 220 V +10% -25% 50Hz, 60Hz automatically selected
Control System	Thyristor phase control. Constant current control or power voltage fluctuation compensation control.
Weight	6.4kg (including toroidal coil TCS-IG50L)
Dimensions	350(W)×118(H)×306(D)/TETRA-222H 118(W)×350(H)×306(D)/TETRA-222V (connectors are not included)



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