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Si5SDAFT1-120V-20A, Single, 120V 20A Solenoid Driver with Adjustable Fast-Timer and with Integrated Heat Sink, T-Chip

The **Si5SDAFT1-120V-20A** is a single, 120V 20A, Solenoid Driver with an integrated heat sink that uses a microprocessor based adjustable timer to fully turn on or off the current in an inductive load. This board requires a single 30V to 120V DC power source (unregulated and unfiltered) at a 0A to 20A current range to operate normally with a wide range of inductive loads (coils or Solenoids). Snubbing circuits and filter capacitors are included to suppress inductive switching transients. An onboard LED (red) is used to monitor the load-voltage. The **onboard timer** can operate in two user-selectable modes (selected by a jumper, labeled as **CN3**). In the **One-Shot Mode** (with **CN3 Open**), each positive voltage edge (0 to +5V transition at pin **I1** relative to pin **G** at **CN5**) produces a coil-current pulse. The pulse width is adjustable from 2 to 200 milliseconds using an on-board 25-turn potentiometer labeled as **P2**. In the **Periodic Mode** (with **CN3 Short**), the coil pulses are periodically generated as long as the input voltage at pin **I1**, relative to pin **G**, at **CN5** is greater than +2.5V. The pulse width is adjustable from 1ms to 128ms in 0.5ms steps using an on-board 25-turn potentiometer (**P2**); while the time-delay between pulses is adjustable from 1ms to 128ms in 1ms steps using a second 25-turn potentiometer (**P1**). The initial value of the load current is also user selectable by a second jumper (labeled as **J1**). If the jumper **J1 is open**, then the **initial load current is fully on** (or the initial load current is maximum) before a valid positive edge or level has arrived at the control input (pin **I1**). If the jumper **J1 is short**, then the **initial load current is fully off** (or the initial load current is zero) before a valid positive edge or level has arrived at the control input (pin **I1**). The control input (**I1**) requires 0 to 5V voltage levels to operate properly. This input is zener-diode protected and can withstand severe overloads. **Both of these jumpers are examined only at power turn-on; consequently, the power must be turned on and off whenever these jumpers are reconfigured.**



A small (4.0"x3.3"x0.062") Aluminum Plate (integrated heat sink) is included with mounting hardware (as shown on the photograph) to operate at 20A or 2400W power levels. Higher power-levels (120V, 30A or 3600W) can be achieved with more efficient heat-sinks. Please click on this link and read the [Board Mounting Instructions and Heat Sink Selection Guide](#). Typical applications are: Inductive-Plunger Driver, SPST Solid State Relay, etc. This board can be configured to perform efficiently in many customized applications.

Specifications and Application for **Si5SDAFT1-120V-20A-16Hz**

- **Typical Operating Temperature at 20A:** 45°C with the Metal Heat-Ring Bolted to a small (4.0"x3.3"x0.062") Aluminum Plate Heat-Sink, while the plate is exposed to air at 25°C (as shown on the photograph).
- **Source-Voltage Requirement (V_P from pin +P to pin -P):** Any DC voltage from 30V to 120V, unregulated and unfiltered DC.
- **Max. Continuous Average Load-Current:** 20A at 100% duty-cycle, with heat-sink (as shown).
- **Max. Load-Current for 5sec:** 40A at 100% duty-cycle, with heat-sink (as shown).
- **Load Isolation:** The Load or Motor must be isolated from the source voltage (V_P).
- **Power-Conversion Efficiency:** Approximately 95.5% at full-load (120V and 20A).

