



SmartStart

Model: SS-12v

SmartStart is an electronic control module for the engine starter system on aircraft. SmartStart improves the safety and security of push-button or key-switch starting systems by providing an interlocked and time limited operation of the engine starter. SmartStart controls standard aviation starter contactors and provides simple integration of control stick switch or panel mounted start switches. SmartStart includes inputs for interlock and arming switches and provides a 1 minute timer for activating the starter contactor. The SmartStart system helps avoid unintentional activation of the engine starting system.

SS-12v is not TSO'd and must only be used in aircraft certified in the Experimental category.

SS-12v must be installed using the current aircraft standards and practices. Refer to AC 43.13-2A/1B. The installer/builder is solely responsible for determining the suitability of the installation and use of this product.

Important Notes:

- 1) SmartStart has an optional Interlock Switch input that may be used to enable/disable the start contactor. Door/canopy switches may be used to ensure the engine cannot be started until the door/canopy is properly closed. This input is a closure to ground to ENABLE the system.
- 2) It is recommended that the Arming Switch be hidden from view to improve theft resistance of the aircraft.
- 3) If using a traditional aircraft keyed mag/start switch and an optional interlock switch is used, then the terminal marked "Bat" on the key switch is connected to pin 4, "armed power" on SmartStart.
- 4) Two wiring diagrams are provided, one with and one without the use of an interlock switch.
- 5) All switches used with SmartStart are of the momentary type and need no particular current rating. The switching of the start contactor is done electronically with no moving parts and includes fly-back diode protection for the start contactor.
- 6) An optional "Armed LED" indicator may be driven from the SmartStart module. The maximum current on this pin is 50 mA. Do not use with incandescent indicator lamps. If this feature is unused, leave this pin un-populated in the connector.
- 7) An optional Airspeed Switch, model ASW-2, may be connected in parallel with the arming switch. The use of the airspeed switch will allow in flight restarting without the need to press the arming switch. When the aircraft is above the airspeed switch set point (factory calibrated at 40 knots) the arming circuit is continuously made thereby ensuring the start switch is always active in flight.

Installation instructions:

- 1) Select an installation diagram that matches the required installation. Diagrams are provided for installations with and without an interlock switch connection. Wire aircraft harness per appropriate diagram.
- 2) Provide power to the SmartStart module through a 5 amp fuse or breaker.
- 3) The SmartStart module uses a standard 9 pin D-sub connector with the male pins on the module. Terminate the harness wires in a mating female D-sub connector.
- 4) If desired, mount the "Armed LED" on the instrument panel.

5) Mount the SmartStart module in the aircraft using the mounting tabs provided. DO NOT mount the module in the firewall forward area.

6) If using the optionally ASW-2 airspeed switch, mount the airspeed switch via the mounting tabs and connect the static and pitot lines to the marked ports. The barbed fittings are sized for ¼" OD pitot and static line with a nominal ID of 3/16". Connect the two terminals of the ASW-2 switch in parallel with the two terminals of the arming switch.

Product operation:

If using a system that includes an interlock switch, ensure the switch is closed. When prepared to start the aircraft engine, momentarily press the armed switch. The activation of the arming switch initiates a 1 minute timer, during the 1 minute time interval closure of the Start Switch will engage the start contactor. During the 1 minute timer interval the "Armed LED" will be illuminated, providing feedback to the pilot that the start system is active. If the system is installed with an optional ASW-2 airspeed switch, then the starter system will always be armed when the aircraft is above the airspeed set-point.

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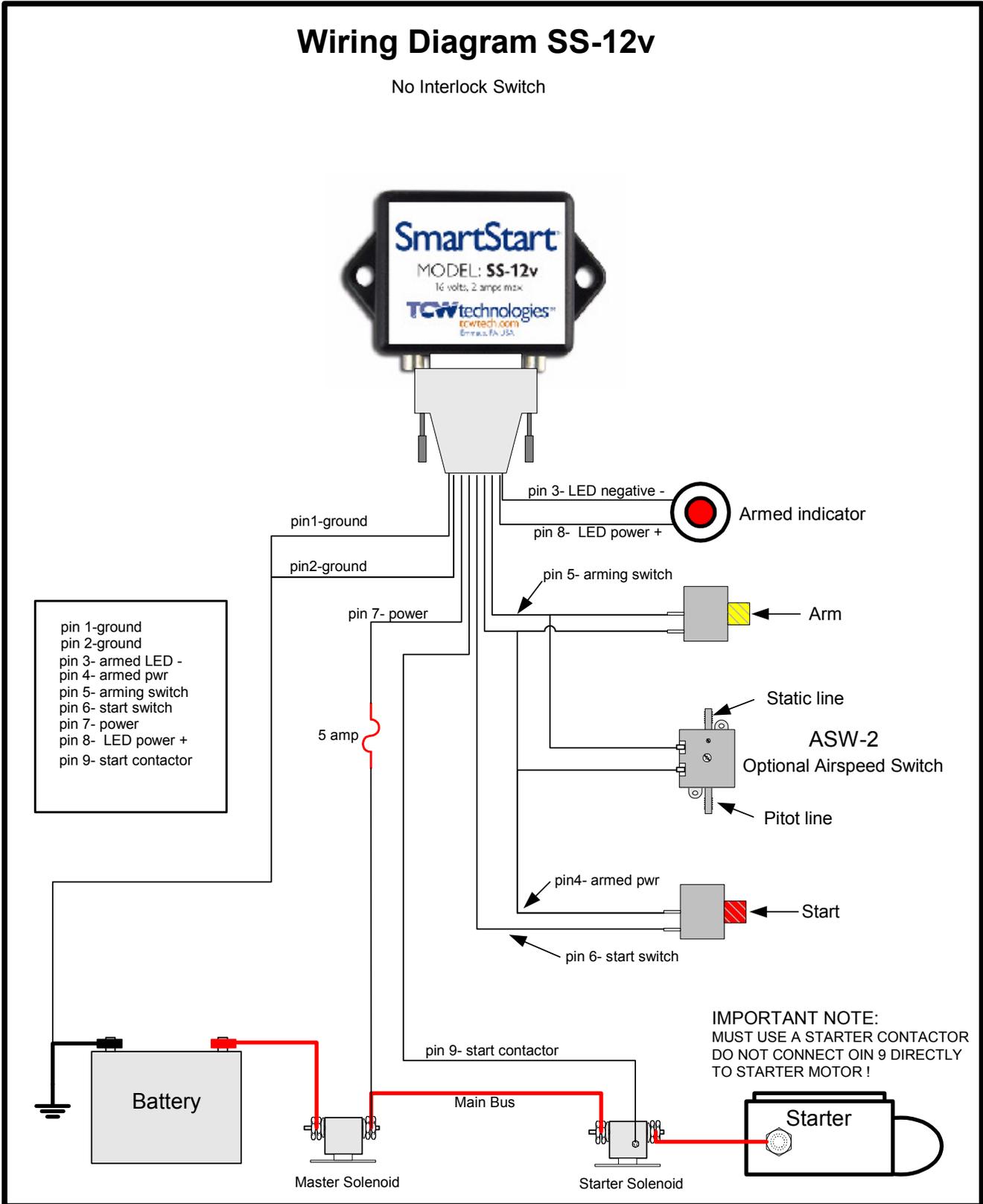
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SmartStart™

Wiring Diagram SS-12v

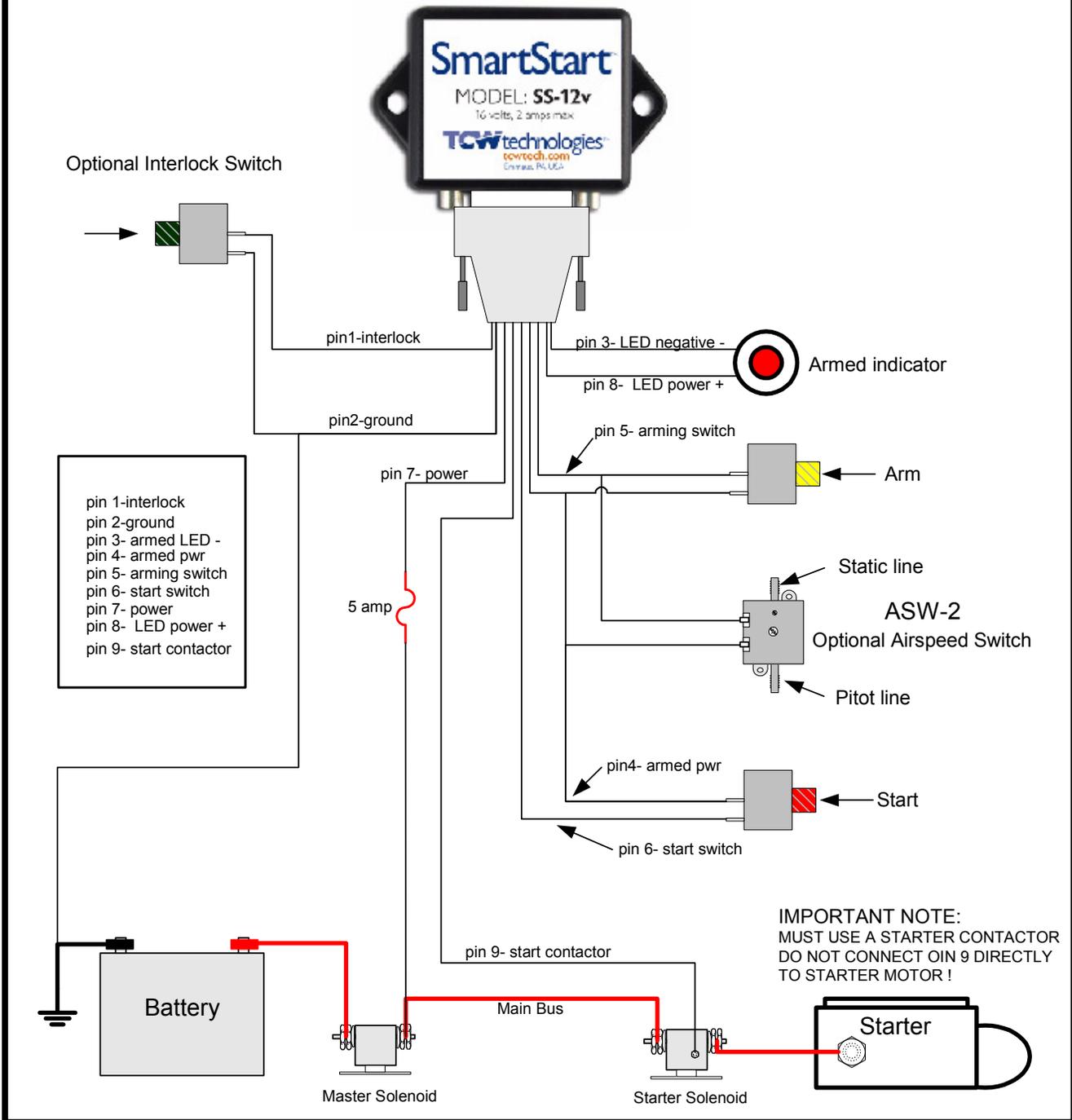
No Interlock Switch



SmartStart™

Wiring Diagram SS-12v

Using Interlock Switch



SmartStart wiring harness

pin 1-interlock	white
pin 2-ground	black
pin 3- armed LED -	white/black
pin 4- armed pwr	orange
pin 5- arming switch	blue
pin 6- start switch	green
pin 7- power	red
pin 8- armed LED +	white/red
pin 9- start contactor	brown

Specifications

Rated voltage :	16 volts DC max
Output Switch:	10 amps peak
Inputs:	maintained closure for interlock, ground to activate momentary closure for arming input momentary closure for starter switch input, V+ to activate
Outputs:	Solidstate output with flyback diode
Timer:	1 minute timer, set by interlock and arming input
Wiring:	Connector- 9 pin d-sub male on controller
Enclosure:	Overall dimensions 1.5" x 1.25" x .8" UL 94V-0 rated material, 60 C° max temp.
Weight:	2 oz.
Model number:	SS-12v

For Experimental Aircraft ONLY not TSO'd

Made in USA

TCW Technologies, LLC.

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