

# IS&S ThrustSense®

## Autothrottle with LifeGuard™ Protection



Available for  
Citation CJ2, CJ3, CJ4, & M2

The IS&S ThrustSense® Autothrottle is a full regime autothrottle system that allows the pilot to automatically control the power setting of the engines and speed targets from takeoff to landing phases of flight, including go-around. The autothrottles are engaged for takeoff and advance the Throttle Levers to the takeoff detent. After the five-minute takeoff power setting the throttles are automatically repositioned to the climb MCT detent.

IS&S's patented LifeGuard™ provides critical VMCA protection, eliminating 'low-and-slow' challenges associated with twin Jet operations. The ThrustSense Autothrottle enables automatic control of engine power settings guarding the power levels within safe limits. ThrustSense will position the Throttle Levers with precision and without "hunting" for a target air speed.

The system's influence on safety is not limited to just VMCA protection, however, as ThrustSense Lifeguard™ manages engine power throughout all phases of flight and eliminating over/under speed situations, further reducing pilot workload.

IS&S's Integrated Standby Unit enables full autothrottle control interface as well as full standby suite capability.

There are no additional structural modifications needed to the throttle quadrant and the removal and replacement of the Standby Unit ensures aircraft downtime is minimized.

*ThrustSense® Autothrottle is commanded by the Integrated Standby Unit (ISU) that serves as the pilot's interface mode for speed and torque selections, and also provides full standby suite capability.*



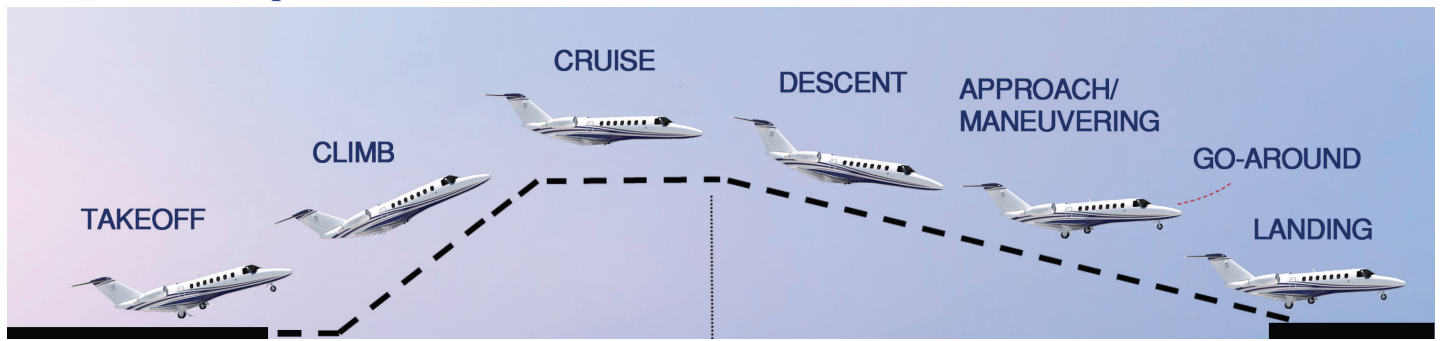
### Features

- VMCA Protection
- Over/Under Speed Protection
- Automatically moves the throttle levers into and out of the detents
- Standby Capability

### Benefits

- Reduced Pilot Workload
- Increased Situational Awareness
- Stabilized Approaches
- Symmetrical Engine Power Management
- Controls Speed and Engine Thrust
- Minimal Force Required to Override Power Lever
- Installation - minimal modifications to existing flight deck

## ThrustSense Operation



**TAKEOFF MODE:** ThrustSense® is engaged for takeoff. ThrustSense will automatically advance the Throttle Levers to the takeoff detent.

**GO-AROUND MODE:** The System automatically positions the Throttle Levers to the takeoff position.

**CLIMB MODE:** After the five-minute takeoff power setting the throttles are automatically repositioned to the “Climb” MCT detent.

**AIRSPEED MACH:** controls airspeed to a commanded value through a manually selected speed change. The Auto-throttle maintains a constant mach speed or indicated airspeed, as commanded by the FMS or pilot’s control panel. VNAV approaches will be flown automatically with speed target precision greatly reducing pilot workload.

**LOSS OF OPERATING ENGINE (VMCA MITIGATION):** ThrustSense Autothrottle will apply appropriate maximum safe power that precludes adverse yaw supporting the rudder bias and reducing the need to apply aileron. The Autothrottle’s One Engine Inoperative (OEI) mode is active during engine loss when ThrustSense is engaged for take-off, climb or go-around.

### CJ3 Cockpit with Standby Display Unit



The Integrated Standby Unit houses the computer that controls the movement of the throttles. This elegant solution is minimally invasive and allows for a short downtime for installation without structural modifications to the throttle quadrant.

### CJ4 Cockpit with Standby Display Unit



The IS&S ThrustSense® Autothrottle is standard equipment on the King Air® 260 and 360 and is available for retrofit on the King Air 200 and 300 series through authorized Service Centers. ThrustSense is also certified for the PC-12 Legacy and NG. Installation can be done at authorized service centers.

ThrustSense was awarded *Flying Magazine’s* 2021 Editors’ Choice Award.



## About Innovative Solutions & Support

Innovative Solutions & Support, Inc. (IS&S) is a leading systems integrator that designs and manufactures cost effective NextGen flight navigation systems and precision flight instrumentation equipment for the aerospace industry. The world’s most respected aircraft builders, owners and operators rely on our leading edge avionics technology, superior craftsmanship, and stringent quality standards to significantly enhance reliability, performance and provide superior value.