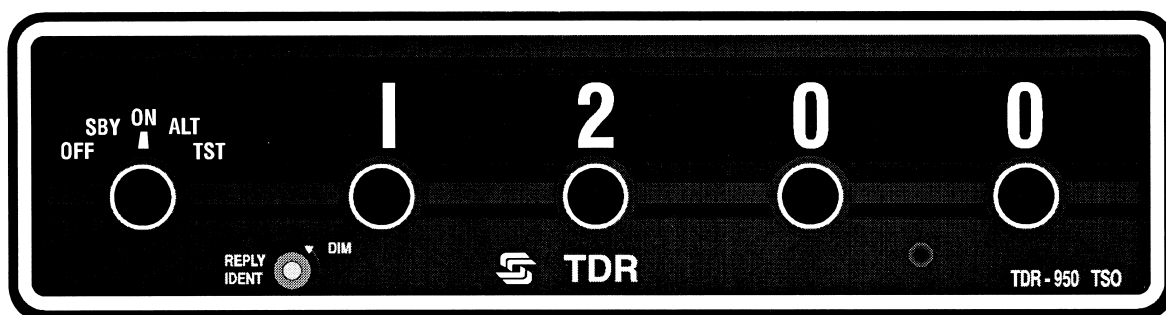


TDR-950 TRANSPONDER



A COMPACT, LIGHTWEIGHT ALTITUDE REPORTING TRANSPONDER

The S-TEC TDR-950 TRANSPONDER is a compact, solid-state, Class 1A unit featuring MOS-LSI to reduce the number of component parts and increase reliability. This rugged unit has features which include Mode-C altitude reporting (when used with an encoding altimeter or blind encoder), remote IDENT function for pilot convenience and unit self-test for operational readiness. The TDR-950 delivers a full 250 watts of peak transmitter power. The TDR-950 operates on 13.75 VDC. Heavy duty power adapter required for 27.5 VDC aircraft. FAA TSO approved.



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TDR-950 Transponder Specifications

FAA TSO	-C74c, class 1A, category DAPAABEXXXXX DO-138	Suppression duration	36 ±2 μs
Size	159 mm W, 41.3 mm H, 207 mm L (6.25 in W, 1.625 in H, 8.15 in L)	Reinitiated suppression duration	34 to 38 μs
Mounting	Panel-mounted	Decoder tolerance	
Weight	0.91 kg (2.0 lb)	Greater than 90% replies	±0.25 μs
Power consumption		Less than 10% replies	Greater than 0.9 or less than -0.9 μs
Input voltage	+13.75 VDC +20%	Decoder P1 to P3 amplitude tolerance	±3 dB min
Input current	0.8 to 1.3 A	Dead time	34 to 38 μs
Lighting	0.24 A at 14 V rms	Ident interval	15 to 30 s
Temperature range		Reply rate control	
Continuous	-15 to +55°C (+5 to +131°F)	Adjustment range	500 to 1200 replies per second
Storage	-40 to +85°C (-40 to +185°F)	Factory setting	1200 per second
Altitude	To 9,144 m (30,000 ft)	Desensitization at 1200 interrogations per second	3 dB max
Relative humidity	95% to +50°C (+122°F)	Desensitization at 1800 interrogations per second	35 dB min
Shock		Reply code capability	
Operational	6 g	Mode A or B	F1,C1,A1,C2,A2,C4, A4,B1,D1,B2,D2,B4, D4,F2,SPIP
Crash safety	15 g (10 ms duration)	Mode C	F1,C1,A1,C2,A2,C4, A4,B1,B2,B4,D4,F2
Vibration	DO-138 category P.O.1 in total excursion, 5 to 55 Hz, 0.25 g, 55 to 2,000 Hz	Reply transmission frequency	1090 ±3MHz
Cooling	Convection	Pulse drain power droop	0.7 dB max
Audio frequency susceptibility	Category A, DO-138	Transmitter power output TDR-950	250 w ±1 dB (peak power at 1% duty or less)
Audio frequency magnetic field susceptibility	Category A, DO-138	Reply delay	2.9 ±0.2 μs
Radio frequency susceptibility	Category A, DO-138	Delay variation between modes	0.1 μs max
Receiver center frequency	1030 MHz	Reply jitter	±0.07 μs max
Band width		Reply pulse spacing tolerance	±0.08 μs max
8 dB	±1 MHz min	Reply pulse width	0.45 ±0.06 μs
60 dB	±24 MHz max	Reply pulse shape	
Sensitivity	-72 dB mW to -77 dB mW	Rise time	50 to 100 ns
Dynamic range	53 dB min	Fall time	50 to 200 ns
Random trigger rate	1 per second max	Spurious rf emissions	Less than category B DO-138
Spurious responses	60 dB down min	Installation limitations	
Narrow pulse ejection	6 dB min at 0.3 μs	Antenna cable	50-ohms
Echo suppression recovery	2.8 ±0.3 dB per μs	Characteristic impedance	
MTL variation between modes	Less than 1 dB	Max loss at 1090 MHz	2 dB
Interrogation mode capability	Responds to modes 3/A and C	Max allowable VSWR	1.2:1 at 1090 MHz
3-pulse side-lobe suppression		Antenna VSWR	1.2:1 max at 1090 MHz
P2 level discrimination		Altitude encoder logic levels	
Less than 1% replies	Less than or equal to 1.0 dB down from P1	Data bit enabled	Less than 1.0 VDC or less than 1200-ohms to ground
Greater than 90% replies	Greater than or equal to 8.5 dB down from P1	Data bit inhibited	Greater than 3.0 VDC or greater than 7000-ohms to ground
P1 to P2 pulse spacing tolerance		Altitude reporting range	-305 to +19,111 m (-1,000 to 62,700 ft)
Less than 1% replies	1.8 to 2.2 μs (3 to 50 dB above MTL)		
Greater than 90% replies	Greater than 2.7 or less than 1.3 μs (0 to 50 dB above MTL)		