

X-BAND Radar Transponder



BTRFLX1D400

BTRFLX1D400 is a high power magnetron based tracking radar transponder for use in missiles or aircraft. It is designed for use in conjunction with an X-Band tracking radar. The unit may operate for single-pulse and double-pulse interrogation.

Main features

- 400 watt minimum peak power output
- Tunable over 8.8 ~ 9.5 GHz
- Heterodyne receiver
- Reverse polarity protection

Reception specifications

<Transmitter>

- Tuning range: 8.8 ~ 9.5 GHz
- Frequency stability: ± 5 MHz (for all operating conditions)
- Output power : 400 watt peak min.
- Pulse width: $0.5 \mu\text{s} \pm 0.2 \mu\text{s}$
- Random triggering: 10 pulse / sec. max.
- Delay vibration: $\pm 0.03 \mu\text{s}$ max.
- Rise time: $0.1 \mu\text{s}$ max.
- Fall time: $0.2 \mu\text{s}$ max.
- PRF: 500 to 3200 pulses per second
- Over-interrogation Protection: Limiting above 3300 pps
- Reply delay: 1, 2, 3 μs (Programmable)
- Recovery time: $50 \mu\text{s}$ max.

<Receiver>

- Frequency range: Fixed among 8.8 ~ 9.5 GHz
- Sensitivity: -70 dBm min.
- Dynamic range: +20 dBm ~ -70 dBm
- Design: Heterodyne
- Frequency stability: ± 2 MHz
- 3dB Bandwidth: 11 ± 3 MHz
- Pulse decoder: single & double pulse operation (selectable)
- Pulse width: $0.25 \sim 5 \mu\text{s}$ (single pulse operating)
 $0.25 \sim 1 \mu\text{s}$ (double pulse operating)
- Pulse coding space: 5, 7, 10 μs (Programmable)
- Second pulse spacing: Accepts $\pm 0.15 \mu\text{s}$. Rejects $\pm 0.3 \mu\text{s}$



Electrical characteristics

- In/Out impedance: 50 ohms nominal
- Open/Short circuit: Antenna input protected
- Reverse polarity: Internal series diode prevents damage from DC voltage reversal
- Voltage transient: Internal power diode protection

Mechanical characteristics

- Dimensions: (L×W×H) 185.0×104.0×84.0 mm
- Weight: Approx. 1.6 kg

Interfaces

- Antenna connector: SMA female
- Power connector: Circular 10-pin

Pin	Description
A	+28 V
B	28 V RTN
C	Pulse Monitor
D	Single/Double selection
E	Receiver Level Monitor (RSSI)
F	PRF Monitor
G	Internal GND
H	CODE1
I	CODE2
J	CODE3
K	CODE4
L	CODE5

Environmental specifications

* the transponder meets the requirements of MIL-STD-810F

<Operating conditions>

- Temperature range: -40 °C to +80 °C
- Altitude: 100 km
- Vibration SINE: 20g rms, 20 to 2 KHz
- Vibration RANDOM: 12g rms, 20 to 2 KHz
- Shocks: 100 g, 11 msec. in any axis
- Acceleration: 30 g along any axis for 3 minutes
- RFI/EMI: MIL-STD-461E
- Pressurization: Maintain 29 psi for 20 minutes

<Primary power>

- Input voltage range: 22 ~ 36 Vdc
- Nominal current: < 1.3 A@3200 pps

Ordering information

BT-RFL-X	-	1	-	
	Freq	No. of antenna port		
	X band X	-----		
	-----	Single antenna port	1	

D	-	400	
	Pulse Operation	RF Power	
	Single Pulse A	400	Watts
	Double Pulse B	300	Watts
	Dual Operation D	200	Watts
	No Decoder N		

