

SI-8646 TALON QUAD CHANNEL 6 GHZ RECEIVERS



The Talon Receivers are a family of quad-channel receiver/signal processors designed to meet the most demanding real-time applications, while providing dramatic reductions in size, weight, power and cost per channel relative to existing solutions. Talons feature **four 2 MHz to 6 GHz receive channels** that can be operated **independently or together phase-coherently**. Their low phase noise synthesizers and channel-to-channel phase tracking make them ideal for direction finding and beam forming applications. Superlative dynamic range and tuning speed round out a performance that is provided in either the SI-8646's 1U half-rack chassis or the the SI-8646-1's 2U half-rack chassis. The SI-8646-1's expanded package allows operation in high-dust environments and includes an on-board ac power supply.

The Talons' sweep/step capability and **tuning speed of less than 50 microseconds** increases the likelihood of intercepting intermittent signal activity and frequency hoppers. Signal fidelity is preserved in difficult signal environments by selecting pre-digitization filters of 40, 25, 10, or 3 MHz with excellent passband ripple and group delay variation. Oversampling of incoming radio frequencies (RF) by analog-to-digital converters (ADCs) at a 128 MHz rate provides excellent signal reconstruction

and minimizes noise and phase distortion. The Talons provide **extensive digital signal processing (DSP)** capabilities utilizing a **Xilinx Kintex-7 field programmable gate array (FPGA)**, a **Virtex-6 FPGA**, large high-speed memory devices and an **eight-channel FLEX Digital Downconverter (DDC) with resampler**. The Talons' processed **digital outputs are formatted as industry standard VITA Radio Transport (VRT) packets**. The transported VRT packets include precision time-stamped real or complex digital IF (ADC) output data in real time. The data outputs are via a fiber optic 10GBASE-SR Ethernet interface. Control of the Talons is achieved utilizing a 10/100 Base-T Ethernet port.

Talon hardware and firmware designs are configurable and expandable to allow for the use of DRS's latest DSP intellectual property (IP) to include special digital filters, fast fourier transforms (FFTs) and advanced wireless demodulation capabilities.



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COMPARISON OF TALON RECEIVER FEATURES

PARAMETER	SI-8646	SI-8646-1
Architecture	Four-channel digital tuner	
Frequency Range	20 MHz to 6 GHz	
HF Bypass	2 MHz to 20 MHz	
Tuning Modes	Manual or Step Sweep	
Tuning Speed	Less than or equal to 50 microseconds	
Digital IF Output	Real or complex VRT-encoded Digital IF over 10-Gigabit Ethernet Options support either long-haul (10 km) or short-haul (300 m) fiber optic transmission	
Digital Downconverters (DDCs)	8 DDCs with 63 pre-defined selectable digital bandwidths ranging from 2.2 kHz to 25 kHz	
Analog IF Filters	Selectable filters with excellent passband ripple and group delay variation	
Analog IF Filters	3, 10, 25 or 40 MHz	5, 10, 25 or 40 MHz
Size	1U half-rack x 22 inches deep	2U half-rack x 23.44 inches deep
Weight	10 lbs maximum	20 lbs maximum
Input Power	Accepts 18 to 48 Vdc	Accepts 85 to 265 Vac
Power Consumption	100 watts	150 watts
Operating Altitude	Up to 30,000 feet, at 40°C maximum ambient CE certified for up to 9,842 ft	Up to 30,000 feet, at 40°C maximum ambient
Control Interface	10/100 Base-T Ethernet	
Additional Features	Fully CE-certified	Four rear panel fans and mechanical packaging allow operation in high-dust environments.
Applications Supported	Supports advanced functions such as search, direction finding and beam forming and user programming of FPGA signal processing for custom application develop support.	
Warranty	3-year Standard Warranty	



The SI-8646 1U Talon Has Very Low Size Weight and Power (SWaP).



The SI-8646-1 2U Low-SWaP Talon is designed for high-dust environments.

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