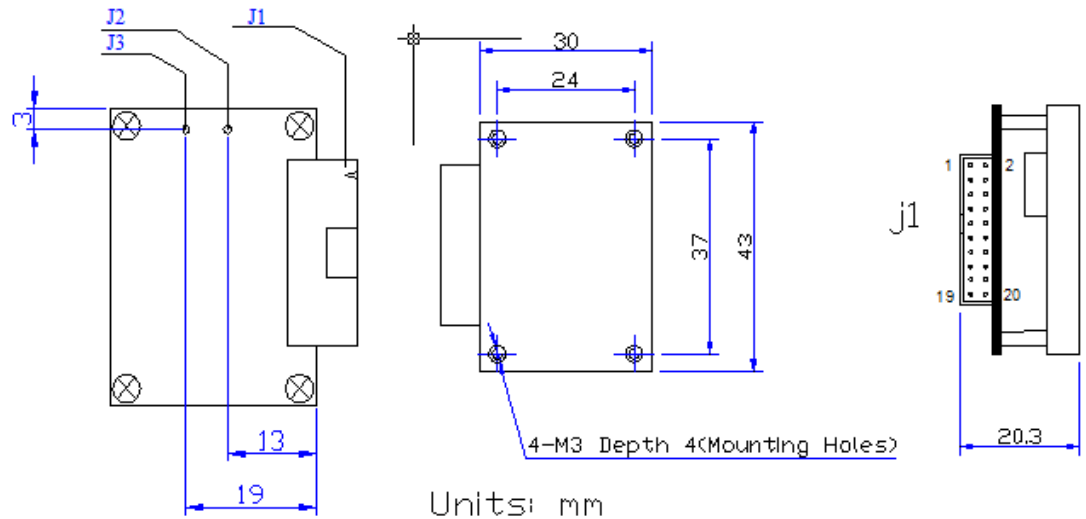


Digital Driver

For Raditek i3 series Yig Tuned Filters and Yig Tuned Oscillators

Part number: RYDD



This Digital Driver is one of RADITEK's families of YIG products designed for our RYBPF-i3 and RYTO-i3 series,
This Digital Driver converts 12 bit (positive logic) standard numbers into mA drive current for the YIG Tuned Filter or YIG Tuned Oscillator.
Additional related products: RYAD-Analog Driver.
For YIG Band pass filters and Yig Tuned Oscillators see www.raditek.com

PIN	Function	Description	PIN	Function	Description
1	D2	TTL address bit 2	11	D7	TTL address bit 7
2	D1	TTL address bit 1	12	GND	
3	D3	TTL address bit 3	13	D8	TTL address bit 8
4	D0	LSB TTL address bit 0	14	n/c	
5	D4	TTL address bit 4	15	D9	TTL address bit 9
6	n/c		16	-15V	@ 50mA current
7	D5	TTL address bit 5	17	D10	TTL address bit 10
8	n/c		18	Com	Common 0V for +/-15V supply
9	D6	TTL address bit 6	19	D11	MSB TTL address bit 11
10	n/c		20	+15V	@ 180 to 380mA current
J2	COIL -	Tuning port YIG FILTER	J3	Coil +	Tuning port YIG FILTER

Operating temperature: 0° to +55° C (standard), user can customize for wider range

Digital Driver

For Raditek i3 series Yig Tuned Filters and Yig Tuned Oscillators

Part number: RYDD

The YIG Digital driver converts 12 bit (positive logic) standard numbers into mA drive current for the YIG Tuned Filter or YIG Tuned Oscillator.

The driver module must be paired with a specific YIG device at the factory.

Current increases linearly at around 50mA per GHz.

Digital driver setting details:-

12 bit control code	Frequency	12 bit control code	Frequency
0000 0000 0000	F Minimum	1111 1111 1111	F Maximum

Tuning resolution example for 2 to 6 GHz is $(F_{max}-F_{min})/4095 = (0.9768) \sim 1$ MHz/bit.

We divide the tuning range, 2000-6000MHz into 4095 increments per bit, examples as follows:

12 bit control code	Frequency	12 bit control code	Frequency
0000 0000 0000	2.0 GHz	1000 0000 0000	4.0 GHz
0010 0000 0000	2.5 GHz	1011 1111 1111	5.0 GHz
0100 0000 0000	3.0 GHz	1101 1111 1111	5.5 GHz
0110 0000 0000	3.5 GHz	1111 1111 1111	6.0 GHz

Example: F =frequency setting in MHz

12 bit control code sequence: $INT[4095 \times (F-2000)/4000] + 0.5$

So for 4 GHz, sequence: $INT[4095 \times (4000-2000)/4000] + 0.5 = 2048$ (Dec) = 1000 0000 0000 (Binary)

Note: Frequency accuracy, excluding hysteresis = ± 40 MHz