

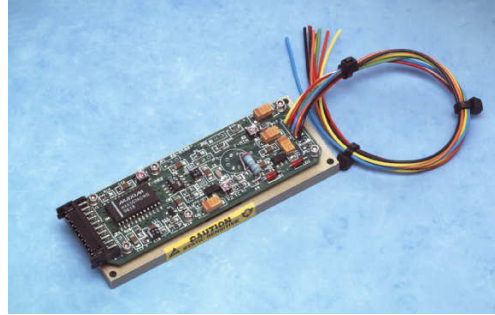


# MICRO LAMBDA WIRELESS, INC.

## YIG DEVICE DRIVERS DIGITAL REMOTE SERIES (RD-SERIES) FOR PERMANET MAGNET DEVICES 2-20 GHz

### FEATURES

- All Permanent Magnet Oscillators
- MLPM & MLPW Series PM YTO's
- Compensation for Temperature Drift
- Voltage Regulators for Improved Stability
- 12 Bit Tuning Resolution
- Remote Oscillator/Driver Location



### DESCRIPTION

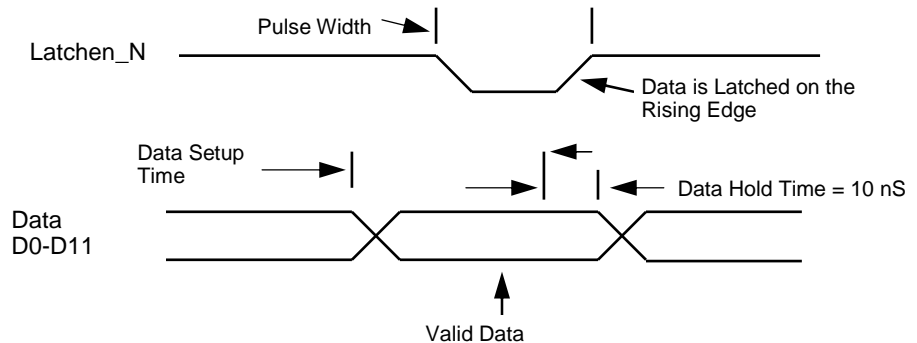
All Micro Lambda Permanent Magnet YIG Devices are available with remotely located digital driver circuits. These drivers eliminate the need for customers to design or develop their own circuits and sophisticated test and alignment procedures. These remote drivers can be aligned at Micro Lambda's factory to ensure peak performance. Alignment and compensation with the particular YIG Device can be maximized down to the component level.

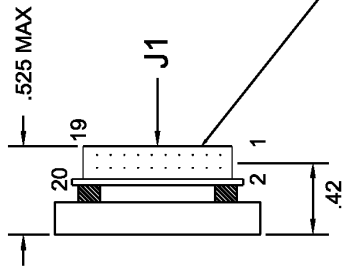
All drivers in this series provide input voltage regulators and compensation circuits to improve frequency drift. All voltages required by the YIG Device, except the heater inputs are supplied by the voltage regulators.

| COMMERCIAL DIGITAL DRIVERS                            | 2-20 GHz P.M. DEVICE, DIGITAL SERIES   |
|---|--|
| DRIVER INPUT & RESPONSE                               | SPECIFICATION ( 0 to + 65 deg. C )   |
| Tuning Command  | Start Word (all 0's) = Lowest Frequency<br>Stop Word (all 1's) = Highest Frequency   |
| Tuning Resolution                                     | 12 BIT Positive Logic (Fmax-Fmin)/4095 Resolution<br>All Data Bits have Internal 10k ohm Pull-up Resistor to +5V<br>YIG Device Accuracy +2 MHz   |
| Frequency Accuracy (Note 1)<br>(excluding hysteresis) |  |
| Tuning Speed  | 10 mSec for 1 GHz step to within +/-10 MHz.  |
| <b>Main Driver Inputs</b>                             |  |
| Supply Voltage & Current (Note 2)                     |  |
| +12 V +/- .5 V  | 265 mA, Max.   |
| -12 V +/- .5 V  | 165 mA, Max.   |
| Supply Voltage Pushing                                | +/- .2%MHz Max. @ .5Vdc (2-3000 kHz)   |
| Supply Voltage Ripple                                 | 10 mV Ripple Pk-Pk from 2 kHz to 3 MHz   |
| Ground  | Chassis Ground   |
| YIG Heater Voltage & Current                          | 300 mA surge for 2 seconds, 25 mA steady state   |
| +24 Vdc ±4 Vdc  | Polarity independent : ±12 Vdc or ±15 Vdc acceptable   |
| Latch Enable  | LATCHEN_N is a TTL, 5V CMOS control line. It has an internal 10k-ohm pull-up resistor to +5 V. It is used to transfer the data on the bus to the digital driver circuit.<br>TTL high = data ignored. Connect to Ground if enable is not required. If the unit is to be used on a computer data bus, the timing Diagram below applies. (All times = Minimum) 10 nS rise/fall latch transitions. |

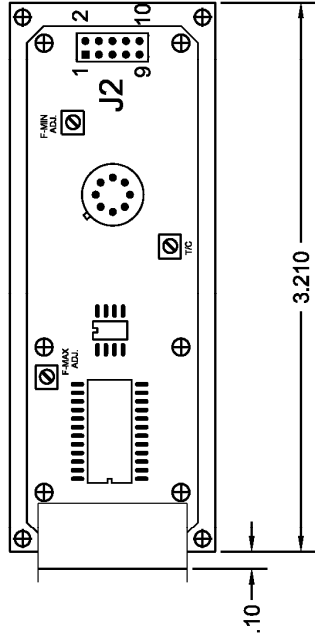
Note 1: Accuracy Includes Temperature Drift & Linearity.  
2. Some YIG Devices require higher voltages - Check with factory.

### TIMING DIAGRAM





2MM DUAL ROW TERMINAL STRIP  
 DIGIKEY P/N: H0269-ND  
 MATING WITH: H2027-ND  
 CRIMP CONTACT: H2139-ND

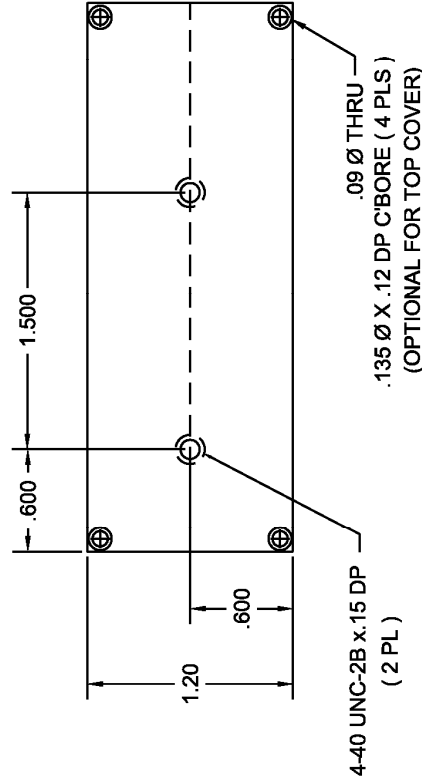


### J2 - CONNECTIONS (OUTPUT)

| PIN NO | FUNCTION                | WIRE COLOR IF SUPPLIED |
|--------|-------------------------|------------------------|
| 1      | + TUNE COIL             | YELLOW                 |
| 2      | OSCILLATOR VCC (+V) (*) | BLUE                   |
| 3      | - TUNE COIL             | YELLOW/BLACK           |
| 4      | -5V (OPTIONAL) (*)      | GREEN                  |
| 5      | + FM COIL (*)           | RED/WHITE              |
| 6      | HEATER +                | ORANGE                 |
| 7      | - FM COIL (*)           | RED/BLACK              |
| 8      | HEATER -                | ORANGE/BLACK           |
| 9      | N/C                     | ---                    |
| 10     | GROUND (*)              | BLACK                  |

(\*) = OSCILLATOR ONLY

\* RECOMMENDED WIRE SIZE = 24-26 AWG  
 DATA 000= F-MIN LATCH-EN 0 = DATA ACTIVE  
 FFF= F-MAX 1 = DATA LATCHED



### J1 - CONNECTIONS (INPUT)

| PIN NO | FUNCTION   | PIN NO | FUNCTION         |
|--------|------------|--------|------------------|
| 1      | DATA BIT 0 | 11     | DATA BIT 10      |
| 2      | DATA BIT 1 | 12     | DATA BIT 11(MSB) |
| 3      | DATA BIT 2 | 13     | LATCHEN_N        |
| 4      | DATA BIT 3 | 14     | GND              |
| 5      | DATA BIT 4 | 15     | + SUPPLY         |
| 6      | DATA BIT 5 | 16     | - SUPPLY         |
| 7      | DATA BIT 6 | 17     | HEATER (+V)      |
| 8      | DATA BIT 7 | 18     | HEATER (GND)     |
| 9      | DATA BIT 8 | 19     | FM + (*)         |
| 10     | DATA BIT 9 | 20     | FM - (*)         |

(\*) = OSCILLATOR ONLY

| REV | DESCRIPTION | DATE | APPROVED |
|-----|-------------|------|----------|
|     |             |      |          |

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE ARE:

|           |          |        |
|-----------|----------|--------|
| FRACTIONS | DECIMALS | ANGLES |
| .xx       | .02      |        |
| .xxx      | .010     |        |

MATERIAL: \_\_\_\_\_  
 FINISH: \_\_\_\_\_

CONTRACT NO. \_\_\_\_\_  
 APPROVALS: \_\_\_\_\_ DATE: 3/22/04  
 DRAWN: N. NGUYEN  
 CHECKED: \_\_\_\_\_  
 ISSUED: \_\_\_\_\_

DO NOT SCALE DRAWING

**MICRO LAMBDA WIRELESS, INC.**  
**REMOTE PMO DIGITAL DRY. (OPEN BOARD)**

|       |          |          |      |
|-------|----------|----------|------|
| SIZE  | CAGE     | DWG. NO. | REV. |
| 0RN63 | 51 - 012 | A        |      |

SCALE: \_\_\_\_\_ SHEET: \_\_\_\_\_