MICRO LAMBDA WIRELESS, INC.

YIG TUNED BAND PASS FILTERS WITH COMMERCIAL ANALOG DRIVERS

FEATURES

- 500 MHz to 50 GHz
- Input Regulators for Improved Stability
  - Versus Power Supply Variations
- 0 to 10 Volt Tuning
- 0° C to +65° C Temperature Range

DESCRIPTION

MICRO LAMBDA YIG Band Pass Filters, model types MLFP Series are available with integrated analog driver circuits.

MICRO LAMBDA drivers eliminate the need for customers to design or develop their own driver circuits and sophisticated test and alignment procedures. Integrating a driver at MICRO LAMBDA's factory ensures that peak performance will be achieved at the time of manufacture. Alignment and compensation with the particular YIG filter can be maximized down to the component level.

All drivers in this series provide input voltage regulators, and compensation circuits to improve frequency drift.

YIG drivers act as a Voltage-To-Current convertor (constant current source) converting standard 0-10 Volts numbers into mA of current to tune a magnetic tuning coil.

POSITIVE INPUT ANALOG DRIVERS
AM Series

MICRO LAMBDA positive analog drivers are available for commercial environments. Standard products provide 0-10 Volt tuning input and operate over the 0° to 65° temperature range.

The AM series of analog driver provide the main coil current from the +15 volt input line. Current increases linearly from 0 mA = 0 GHz at a rate of approximately 50 mA per 1 GHz. A 2-8 GHz filter will require 100 mA @ 2 GHz and 400 mA @ 8 GHz.

In special cases, speed-up circuits like those used to improve the tuning speed of YIG oscillators can also be included to provide both fast-tuned filters and with good accuracy. Filter parameters can be maximized during factory alignment to meet customer specific requirements.

AVAILABLE OPTIONS FOR AM-SERIES COMMERCIAL ANALOG DRIVERS

- **Optional Tuning Speeds**
- **Optional Sweep Speeds**

Micro Lambda Wireless, Inc. - 46515 Landing Parkway, Fremont California 94538 * Phone (510) 770-9221 * Fax (510) 770-9213

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DRIVER INPUT & RESPONSE	SPECIFICATION (0 to +65 deg. C)
Main Coil Driver Function	
Tuning Command (P1-1, 2)	0 Volts = Lowest Frequency +10 Volts = Highest Frequency
Tuning Accuracy (excluding hysteresis)	See Table
Tuning Speed (Note 1)	2 mS for 1 GHz step to within +/-10 MHz.
Sweep Speed (Note 2) (0-10 Volt Ramp)	50 mS up / 10 mS retrace for 1 GHz, Linearity @ 0.1%
Main Driver Inputs	
Supply Voltage & Current (P1-6)	+15 V +/- .5 V @ Filter Tuning Current + 50 mA, Max.
(P1-5)	-15 V +/- .5 V @ 50 mA, Max.
Supply Voltage Pushing	+/- 100 kHz, Max. @ +/- .5 Vdc
Supply Voltage Ripple	10 mV Ripple Pk-Pk from 2 kHz to 3 MHz
Ground (P1-4, 12)	Chassis Ground
YIG Heater Voltage & Current (P1-7, 8)	+24 Vdc ±4 Vdc @ 300 to 750 mA surge for 2 seconds, 100 - 150 mA steady state depending on filter type
	Polarity independent : ±12 Vdc or ±15 Vdc acceptable
Input Impedance	> 10 k-Ohms
Common Rejection Mode	> 40 dB

Note 1: Optional .5 mS Tuning Speeds Available

2: Optional 5 mS Sweep Speed Available

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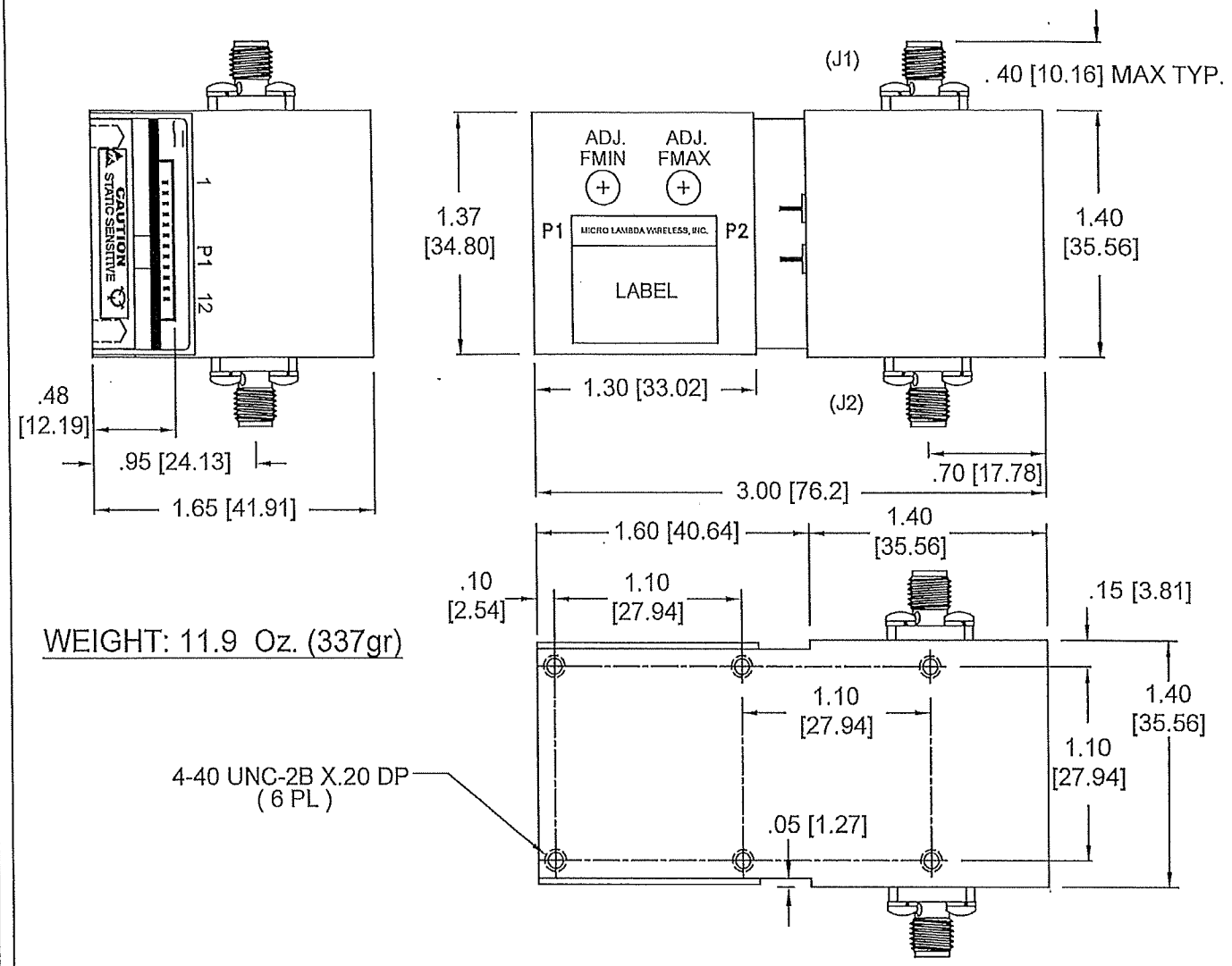
Bandpass Filters with Positive Input Analog Drivers (0° C to +65° C)

MODEL NUMBER	# Stages	Frequency GHz	3 dB Bandwidth (MHz)	Accuracy (MHz) *	Current +15V (mA)	Current -15V (mA)	Outline Drawing
MLFP-20520AM	2	0.50 to 2.0	20	+/- 10	350	50	99-0021-171
MLFP-22018AM	2	2.0 to 18.0	25	+/- 20	1050	50	99-0021-171
MLFP-22026AM	2	2.0 to 26.5	20	+/- 35	1200	50	99-0021-172
MLFP-40520AM	4	0.50 to 2.0	20	+/- 10	350	50	99-0021-171
MLFP-42008AM	4	2.0 to 8.0	20	+/- 20	550	50	99-0021-171
MLFP-42018AM	4	2.0 to 18.0	40	+/- 20	1050	50	99-0021-171
MLFP-42026AM	4	2.0 to 26.5	25	+/- 35	1200	50	99-0021-181
MLFP-46018AM	4	6.0 to 18.0	100	+/- 20	1050	50	99-0021-171
MLFP-48018AM	4	8.0 to 18.0	400	+/- 25	1050	50	99-0021-171
MLFP-43040AM	4	3.0 to 40.0	30	+/- 50	1450	50	99-0021-180
MLFP-43044AM	4	3.0 to 44.0	30	+/- 60	1550	50	99-0021-180
MLFP-43050AM	4	3.0 to 50.0	30	+/- 90	2100	50	99-0021-173
MLFP-47040AM	4	7.0 to 40.0	35	+/- 50	1450	50	99-0021-180
MLFP-41840AM	4	18.0 to 40.0	50	+/- 50	1450	50	99-0021-180
MLFP-60520AM	6	0.5 to 2.0	20	+/-20	350	50	99-0021-179
MLFP-62008AM	6	2.0 to 8.0	50	+/-20	550	50	99-0021-179
MLFP-62018AM	6	2.0 to 18.0	50	+/- 20	1050	50	99-0021-179
MLFP-62026AM	6	2.0 to 26.5	30	+/- 35	1200	50	99-0021-181
MLFP-66018AM	6	6.0 to 18.0	100	+/- 20	1050	50	99-0021-179
MLFP-68018AM	6	8.0 to 18.0	500	+/- 25	1050	50	99-0021-179
MLFP-70520AM	7	0.5 to 2.0	20	+/- 10	350	50	99-0021-179
MLFP-72008AM	7	2.0 to 8.0	50	+/-20	550	50	99-0021-179
MLFP-72018AM	7	2.0 to 18.0	40	+/- 35	1050	50	99-0021-179
MLFP-72026AM	7	2.0 to 26.5	30	+/- 35	1350	50	99-0021-181
MLFP-76018AM	7	6.0 to 18.0	500	+/- 45	1050	50	99-0021-179
MLFP-78020AM	7	8.0 to 20.0	500	+/- 45	1150	50	99-0021-179
MLFP-76018LAM	7-L	6.0 to 18.0	500	+/- 45	1050	50	99-0021-179
MLFP-78018LAM	7-L	8.0 to 18.0	500	+/- 45	1050	50	99-0021-179
MLFP-78020LAM	7-L	8.0 to 20.0	500	+/- 45	1150	50	99-0021-179



WEIGHT: 11.9 Oz. (337gr)

INPUT

P1 ANALOG MODEL		P1 SERIAL MODEL
PIN	*FUNCTION*	*FUNCTION*
1	CONTROL-V 0-10V	CLOCK (SCLK)
2	CONTROL RETURN	DATA (MOSI)
3	N/C	SELECTn ($\overline{CS}$)
4	GROUND	GROUND
5	-V SUPPLY	-V SUPPLY
6	+V SUPPLY	+V SUPPLY
7	HEATER 1	HEATER 1
8	HEATER 2	HEATER 2
9	N/C	N/C
10	N/C	N/C
11	N/C	N/C
12	GROUND	GROUND

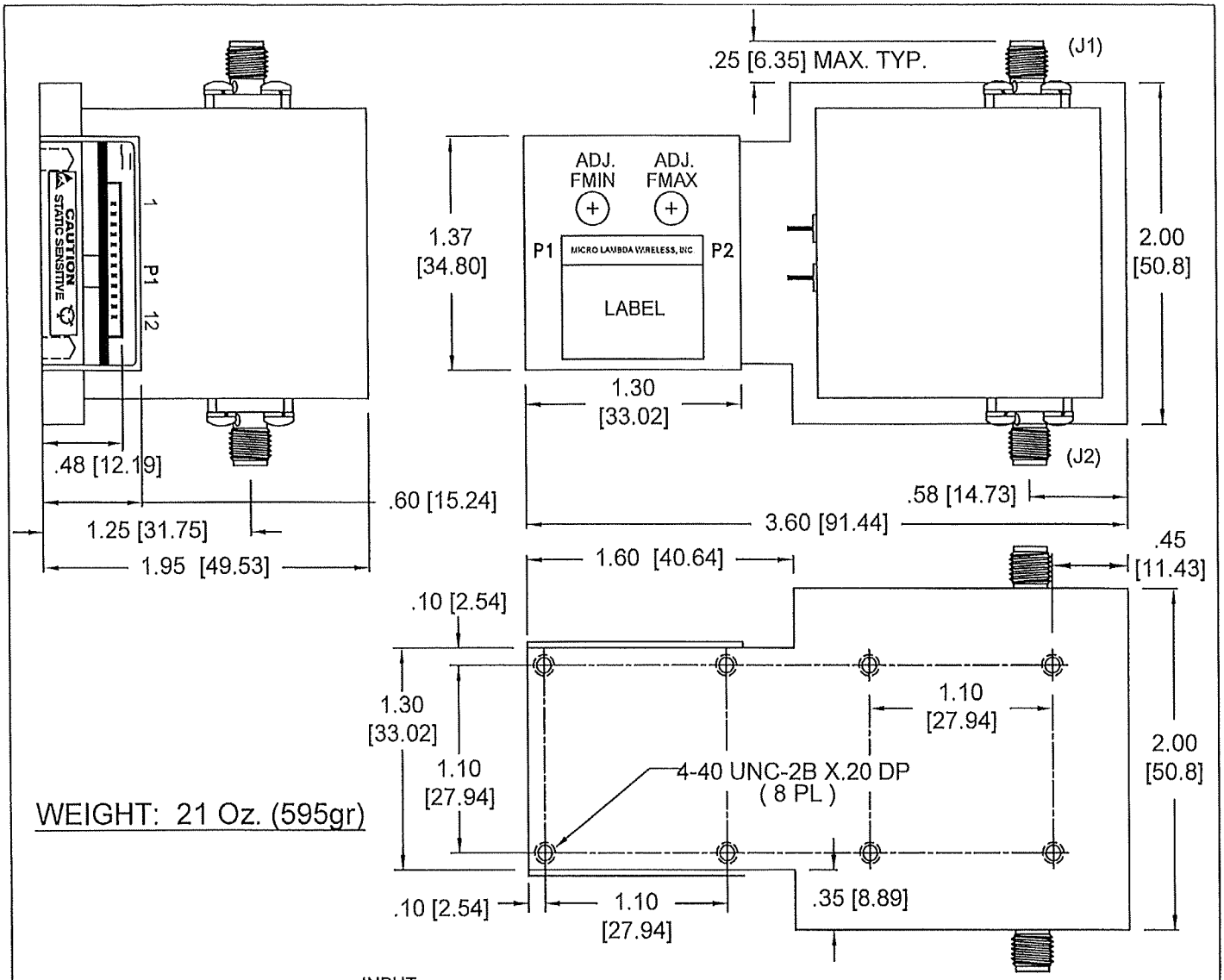
FILTER RF CONNECTIONS

CONN.	*TYPE*	*FUNCTION*
J1	SMA	RF INPUT
J2	SMA	RF OUTPUT

NOTES:

1- RECOMMENDED WIRE SIZE = 24 GAUGE
2- P1 CONNECTION:
   - MOLEX PART # : 5040501291(1.5MM)
   - MATING WITH # : 5040511201
   - CRIMP CONTACT : 5040520098
3- DIMENSIONS ARE IN INCHES
4- ( ) DIMENSIONS ARE IN MM.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCE ARE: FRACTIONS ± DECIMALS .xx ±.02 .xxx ±.010 ANGLES ±	CONTRACT NO.		
MATERIAL	APPROVALS	DATE	MICRO LAMBDA WIRELESS, INC.
	DRAWN N.NGUYEN	5/19/2022	
FINISH	CHECKED DS	5/26/22	*ANALOG OR SERIAL DRIVER WITH 1.4" BP FILTER*
DO NOT SCALE DRAWING	ISSUED		SIZE: — CAGE No: 0RN63 DWG. NO: 99 - 0021 - 171 REV: A



WEIGHT: 21 Oz. (595gr)

INPUT

P1 ANALOG MODEL		P1 SERIAL MODEL
PIN	*FUNCTION*	*FUNCTION*
1	CONTROL-V 0-10V	CLOCK (SCLK)
2	CONTROL RETURN	DATA (MOSI)
3	N/C	SELECTn ($\overline{CS}$)
4	GROUND	GROUND
5	-V SUPPLY	-V SUPPLY
6	+V SUPPLY	+V SUPPLY
7	HEATER 1	HEATER 1
8	HEATER 2	HEATER 2
9	FM +/- 10V	N/C
10	FM RETURN	N/C
11	FAST/SLOWn	N/C
12	GROUND	GROUND

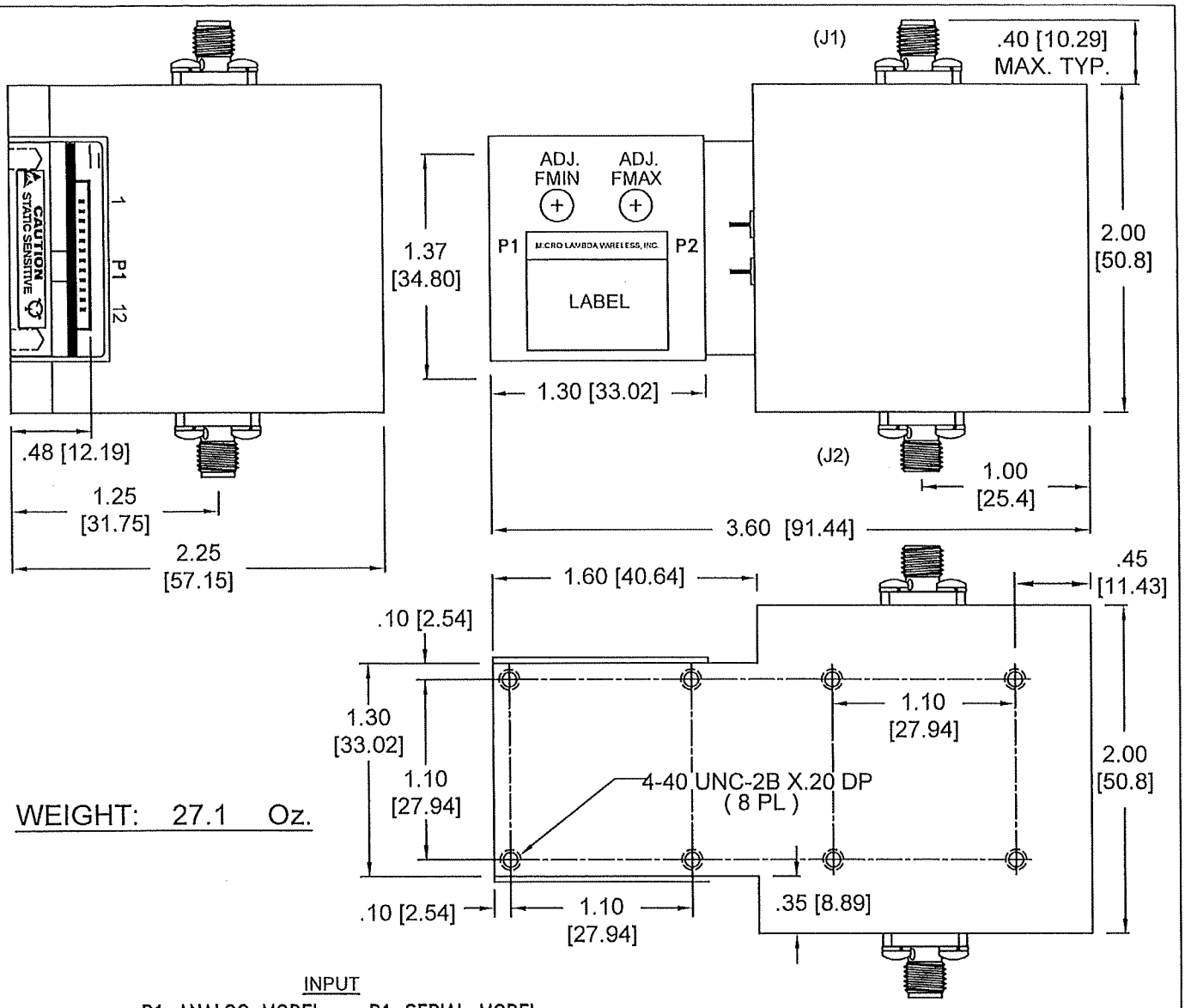
FILTER RF CONNECTIONS

CONN.	*TYPE*	*FUNCTION*
J1	SMA	RF INPUT
J2	SMA	RF OUTPUT

NOTES:

1- RECOMMENDED WIRE SIZE = 24 GAUGE
2- P1 CONNECTION:
   - MOLEX PART # : 5040501291(1.5MM)
   - MATING WITH # : 5040511201
   - CRIMP CONTACT : 5040520098
3- DIMENSIONS ARE IN INCHES
4- [ ] DIMENSIONS ARE IN MM.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE ARE: FRACTIONS ± DECIMALS .xx ±.02 .xxx ±.010 ANGLES ±	CONTRACT NO.		
MATERIAL	APPROVALS	DATE	MICRO LAMBDA WIRELESS, INC.
	DRAWN N.NGUYEN	9/19/2022	
	CHECKED DS	9/19/22	*ANALOG OR SERIAL DRIVER WITH 1.7" BP / FILTER*
FINISH	ISSUED		SIZE: — CAGE No: 0RN63 — DWG. NO: 99 - 0021 - 181 — REV: A
DO NOT SCALE DRAWING			



WEIGHT: 27.1 Oz.

INPUT

P1 ANALOG MODEL		P1 SERIAL MODEL
PIN	*FUNCTION*	*FUNCTION*
1	CONTROL-V 0-10V	CLOCK (SCLK)
2	CONTROL RETURN	DATA (MOSI)
3	N/C	SELECTn ($\overline{CS}$)
4	GROUND	GROUND
5	-V SUPPLY	-V SUPPLY
6	+V SUPPLY	+V SUPPLY
7	HEATER 1	HEATER 1
8	HEATER 2	HEATER 2
9	FM +/- 10V	N/C
10	FM RETURN	N/C
11	FAST/SLOWn	N/C
12	GROUND	GROUND

FILTER RF CONNECTIONS

CONN.	*TYPE*	*FUNCTION*
J1	V-CONN; FEM.	RF INPUT
J2	V-CONN; FEM.	RF OUTPUT

NOTES:

1- RECOMMENDED WIRE SIZE = 24 GAUGE
2- P1 CONNECTION:
   – MOLEX PART # : 5040501291(1.5MM)
   – MATING WITH # : 5040511201
   – CRIMP CONTACT : 5040520098
3- DIMENSIONS ARE IN INCHES
4- ( ) DIMENSIONS ARE IN MM.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE ARE: FRACTIONS ± DECIMALS .xx ±.02 .xxx ±.010 ANGLES ±	CONTRACT NO.	MICRO LAMBDA WIRELESS, INC.	
MATERIAL	APPROVALS / DRAWN N.NGUYEN / DATE 5/20/2022	*ANALOG OR SERIAL DRIVER WITH 2.0" BP FILTER*	
FINISH	CHECKED DS 5/26/22 / ISSUED	SIZE	CAGE No 0RN63 / DWG. NO. 99 - 0021 - 173 / REV A
DO NOT SCALE DRAWING			