



MICRO LAMBDA WIRELESS, INC.

YIG TUNED FILTERS WITH COMMERCIAL ANALOG DRIVERS AM SERIES

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 Filters, model types MLFP Series, MLFR-Series, MLFRD-Series and MLUN-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 converter (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**



**YIG TUNED FILTERS WITH
COMMERCIAL ANALOG DRIVERS**

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) (P1-5)	+15 V +/- .5 V @ Filter Tuning Current + 50 mA, Max. -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



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

MODEL	#	Frequency	3 dB	Accuracy	Current	Current	Outline
NUMBER	Stages	GHz	Bandwidth (MHz)	(MHz) *	+15V (mA)	-15V (mA)	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	99-0021-172
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-62018AM	6	2.0 to 18.0	40	+/- 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-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

* Accuracy includes frequency drift and linearity errors over the temperature range.



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

Model Number	Frequency GHz	3 dB Bandwidth (MHz)	40 dB Bandwidth (MHz)	Accuracy (MHz) *	Current +15 V (mA)	Current -15 V (mA)	Outline Drawing
MLFR-0102AM	1.0 to 2.0	100	10	+/- 5	250	50	99-0021-177
MLFR-0204AM	2.0 to 4.0	125	15	+/- 7	350	50	99-0021-177
MLFR-0408AM	4.0 to 8.0	150	20	+/- 10	550	50	99-0021-177
MLFR-0812AM	8.0 to 12.4	150	25	+/- 12	750	50	99-0021-177
MLFR-1218AM	12.4 to 18.0	150	25	+/- 12	1050	50	99-0021-177
MLFR-0502AM	0.50 to 2.0	150	5 @ 30dB	+/- 5	250	50	99-0021-177
MLFR-0206AM	2.0 to 6.0	150	20	+/- 10	450	50	99-0021-177
MLFR-0208AM	2.0 to 8.0	150	15	+/- 14	550	50	99-0021-177
MLFR-0212AM	2.0 to 12.0	150	10	+/- 15	750	50	99-0021-177
MLFR-0218AM	2.0 to 18.0	150	10	+/- 25	1050	50	99-0021-177
MLFR-0220AM	2.0 to 20.0	150	5	+/- 25	1050	50	99-0021-177
MLFR-0418AM	4.0 to 18.0	150	10	+/- 20	1050	50	99-0021-177
MLFR-160418AM	4.0 to 18.0	150	25	+/- 20	1050	50	99-0021-177
MLFR-0618AM	6.0 to 18.0	150	25	+/- 18	1050	50	99-0021-177
MLFR-160618AM	6.0 to 18.0	150	25	+/- 18	1050	50	99-0021-177
MLFR-0818AM	8.0 to 18.0	150	35	+/- 18	1050	50	99-0021-177
MLFR-160818AM	8.0 to 18.0	150	35	+/- 18	1050	50	99-0021-177

Dual Channel Band Reject Filters with Positive Input Analog Drivers (0° C to +65° C)

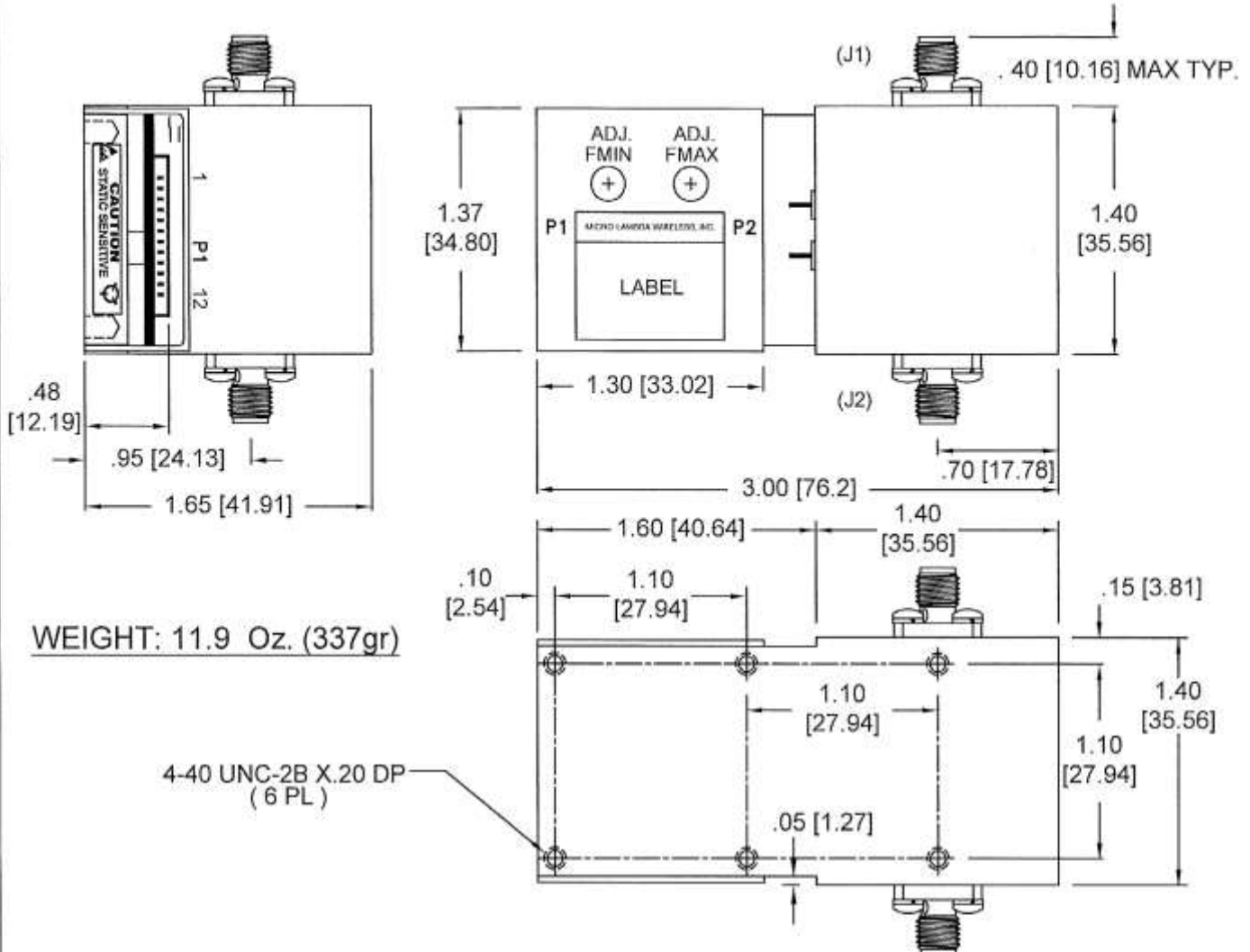
MLFRD-0206AM	2.0 to 6.0	120	5	+/- 10	450	50	**
MLFRD-0208AM	2.0 to 8.0	120	5	+/- 12	550	50	**
MLFRD-0618AM	6.0 to 18.0	100	15	+/- 20	1050	50	**
MLFRD-0818AM	8.0 to 18.0	100	15	+/- 18	1050	50	**

Ultra Notch Band Reject Filters with Positive Input Analog Drivers (0° C to +65° C)

Model Number	Frequency GHz	3 dB Bandwidth (MHz)	60 dB Bandwidth (MHz)	Accuracy (MHz) *	Current +15 V (mA)	Current -15 V (mA)	Outline Drawing
MLUN-0305AM	.35 to .52	50	4 @ 30dB	+/- 2	100	50	99-0021-175
MLUN-0502AM	.50 to 2.0	80	5 @ 40dB	+/- 5	250	50	99-0021-175
MLUN-0206AM	2.0 to 6.0	120	17	+/- 10	450	50	99-0021-175
MLUN-0618AM	6.0 to 18.0	175	35	+/- 18	1050	50	99-0021-176
MLUN-0218AM	2.0 to 18.0	175	5	+/- 25	1050	50	99-0021-176

* Accuracy includes frequency drift and linearity errors over the temperature range.

** Outline drawing is available from Factory.



WEIGHT: 11.9 Oz. (337gr)

4-40 UNC-2B X.20 DP
(6 PL)

INPUT

PIN	ANALOG MODEL FUNCTION	P1 SERIAL MODEL FUNCTION
1	CONTROL-V 0-10V	CLOCK (SCLK)
2	CONTROL RETURN	DATA (MOSI)
3	N/C	SELECTn (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:

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

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCE ARE:
FRACTIONS DECIMALS ANGLES
± .01 ± .005 ± .01
MATERIAL
FINISH
DO NOT SCALE DRAWING

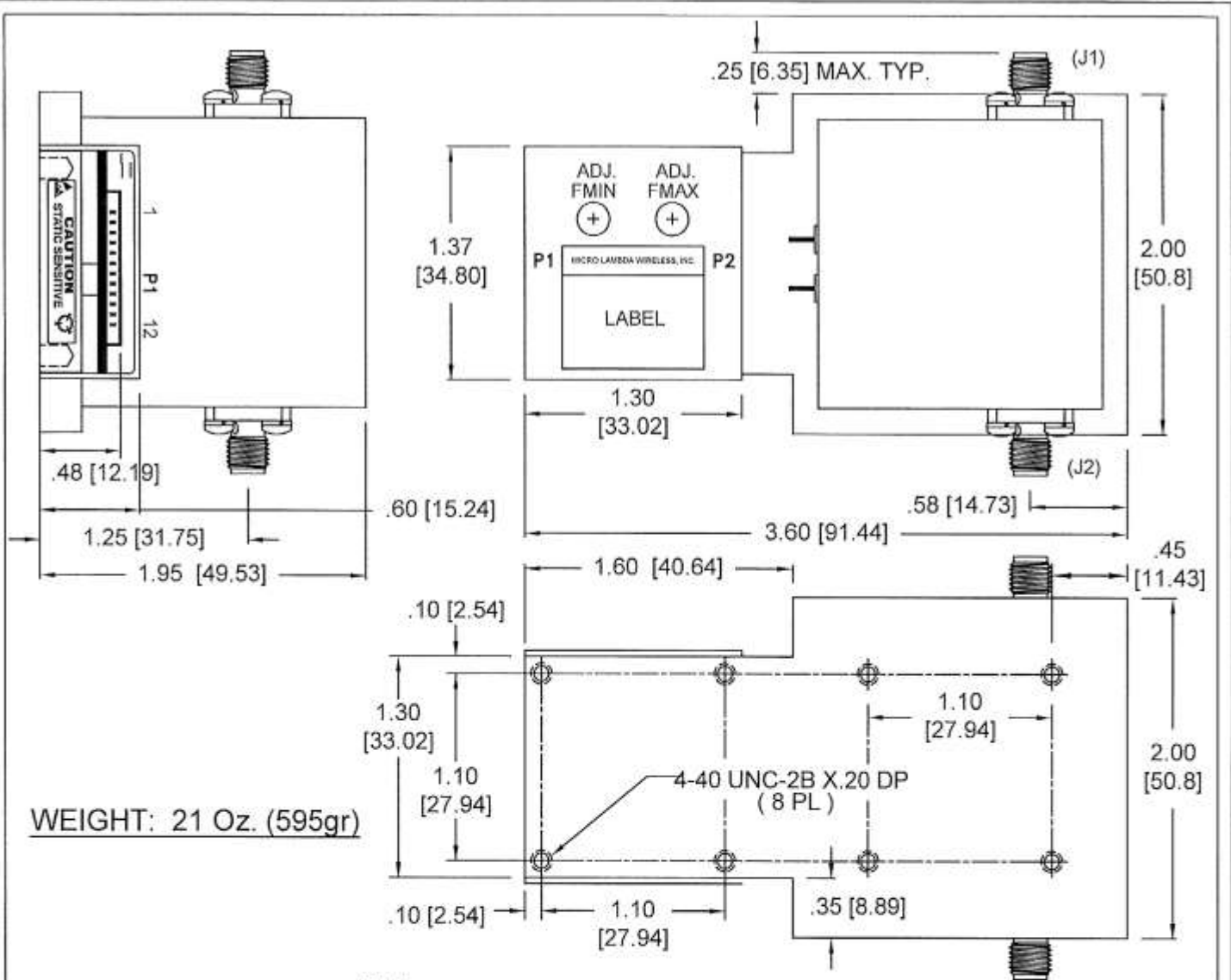
CONTRACT NO.	
APPROVALS	DATE
DRAWN N. NGUYEN	5/19/2022
CHECKED DS	5/24/22
ISSUED	



MICRO LAMBDA WIRELESS, INC.

ANALOG OR SERIAL DRIVER WITH 1.4" BP FILTER

SIZE	CAGE No ORN63	DWG. NO. 99 - 0021 - 171	REV A
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WEIGHT: 21 Oz. (595gr)

INPUT

PIN	ANALOG MODEL FUNCTION	P1 SERIAL MODEL FUNCTION
1	CONTROL-V 0-10V	CLOCK (SCLK)
2	CONTROL RETURN	DATA (MOSI)
3	N/C	SELECTn (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:

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

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCE ARE: FRACTIONS DECIMALS ANGLES

CONTRACT NO.



MICRO LAMBDA WIRELESS, INC.

MATERIAL

APPROVALS DATE

DRAWN N. NGUYEN 9/19/2022

CHECKED DS 9/14/22

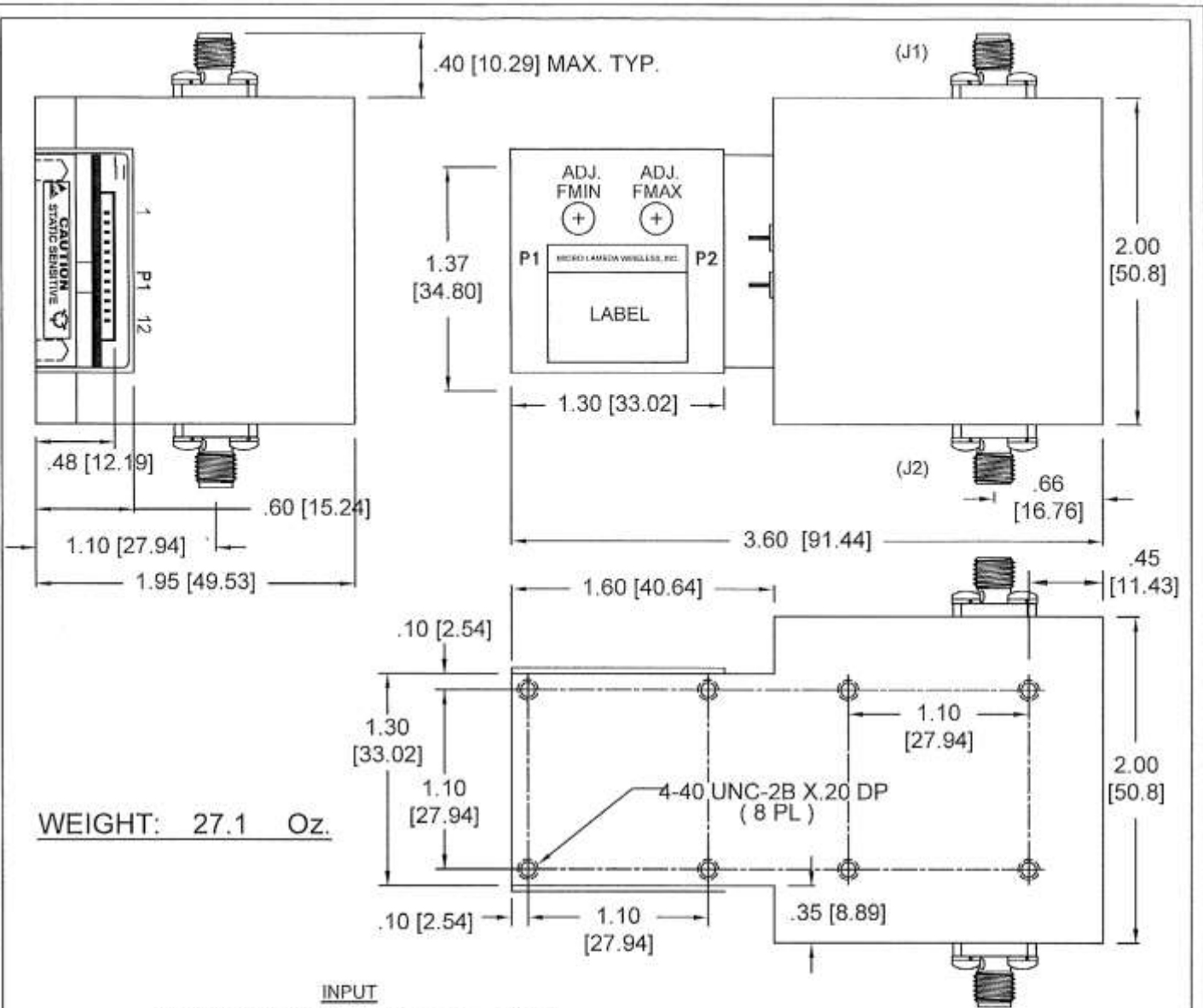
ISSUED

ANALOG OR SERIAL DRIVER WITH 1.7" BP / FILTER

FINISH

SIZE CASE No ORN63 DWG. NO. 99 - 0021 - 181 REV. A

DO NOT SCALE DRAWING



WEIGHT: 27.1 Oz.

INPUT

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

FILTER RF CONNECTIONS

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

NOTES:

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

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE ARE FRACTIONS DECIMALS ANGLES
 * XX ±.01
 * XX ±.010
 MATERIAL
 FINISH
 DO NOT SCALE DRAWING

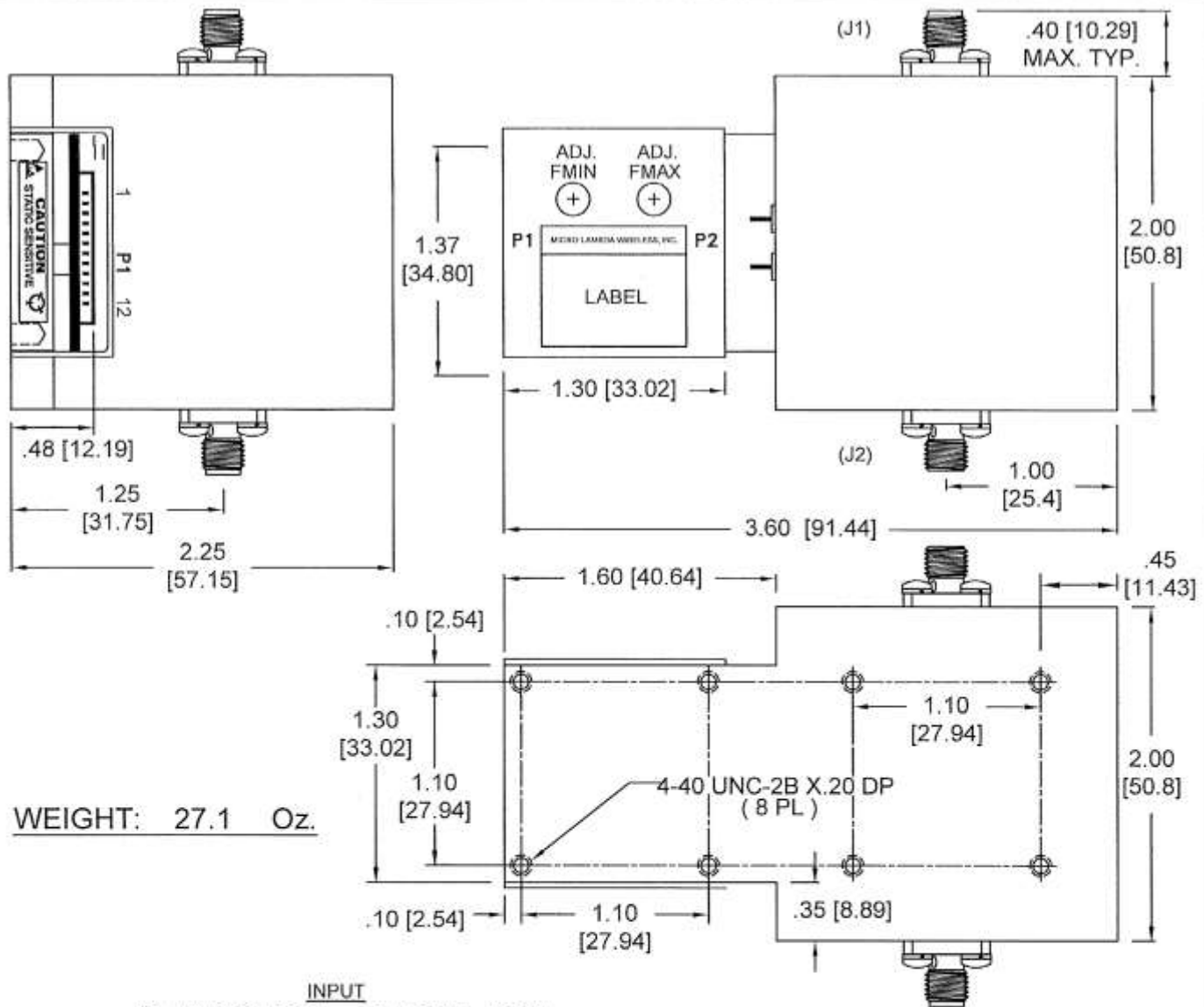
CONTRACT NO.	
APPROVALS	DATE
DRAWN N. NGUYEN	7/26/2022
CHECKED DS	7/27/22
ISSUED	



MICRO LAMBDA WIRELESS, INC.

ANALOG OR SERIAL DRIVER WITH 2.0" BP FILTER; K-CONN.

SIZE	CAGE NO.	DWG. NO.	REV.
	0RN63	99 - 0021 - 180	A



INPUT

PIN	FUNCTION	FUNCTION
1	CONTROL-V 0-10V	CLOCK (SCLK)
2	CONTROL RETURN	DATA (MOSI)
3	N/C	SELECTn (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:

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

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE ARE: FRACTIONS DECIMALS ANGLES

CONTRACT NO.



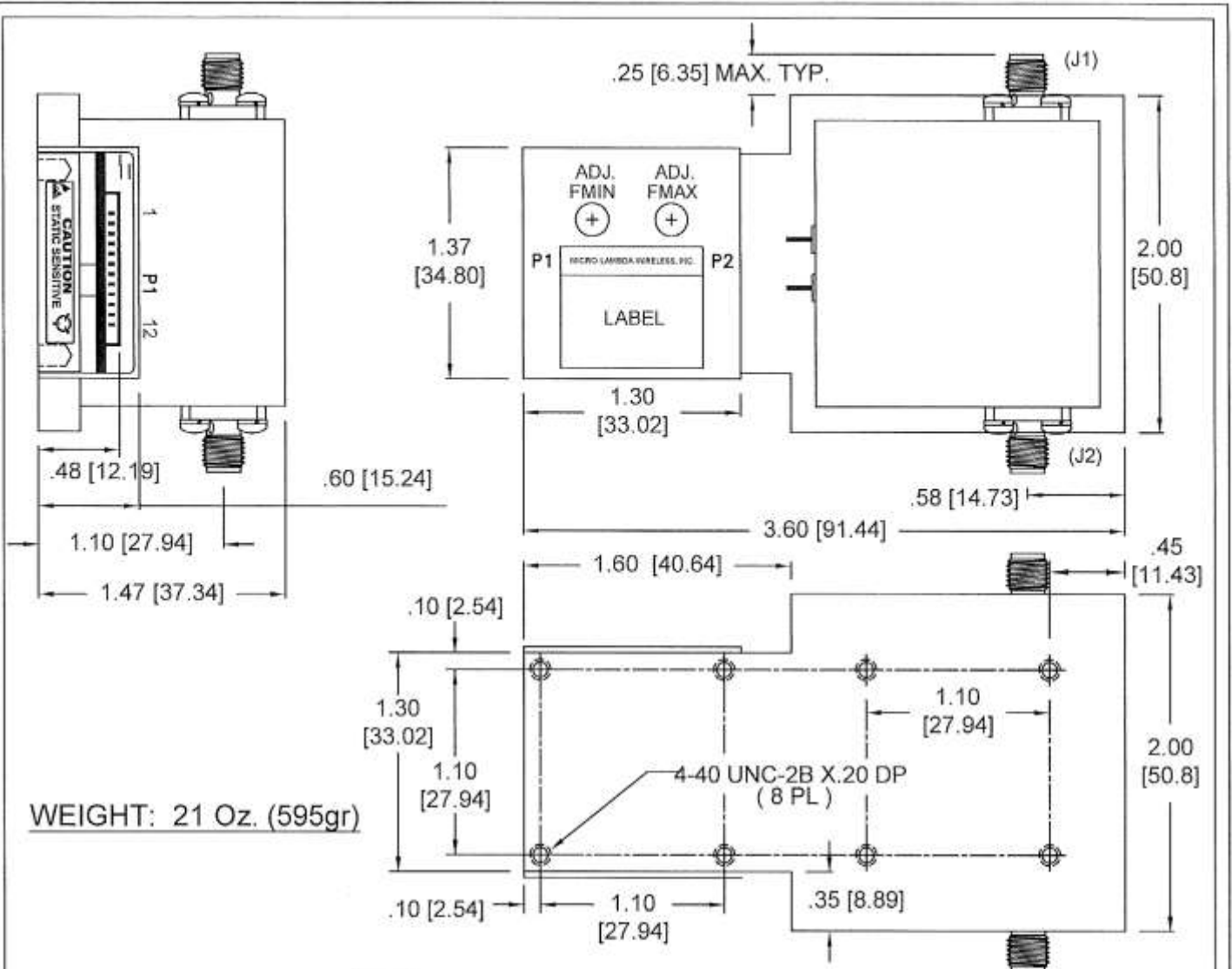
MICRO LAMBDA WIRELESS, INC.

APPROVALS	DATE
DRAWN N. NGUYEN	5/20/2022
CHECKED DS	5/24/22
ISSUED	

ANALOG OR SERIAL DRIVER WITH 2.0" BP FILTER

DO NOT SCALE DRAWING

SIZE	CAGE No.	DWG. NO.	REV.
	ORN63	99 - 0021 - 173	A



INPUT

PIN	ANALOG MODEL FUNCTION	P1 SERIAL MODEL FUNCTION
1	CONTROL-V 0-10V	CLOCK (SCLK)
2	CONTROL RETURN	DATA (MOSI)
3	N/C	SELECTn (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 FEMALE	RF INPUT
J2	SMA FEMALE	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 TOLERANCES ARE:

FRACTIONS DECIMALS ANGLES

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS

DATE

DRAWN H. NGUYEN 7/26/2022

CHECKED DS 7/27/22

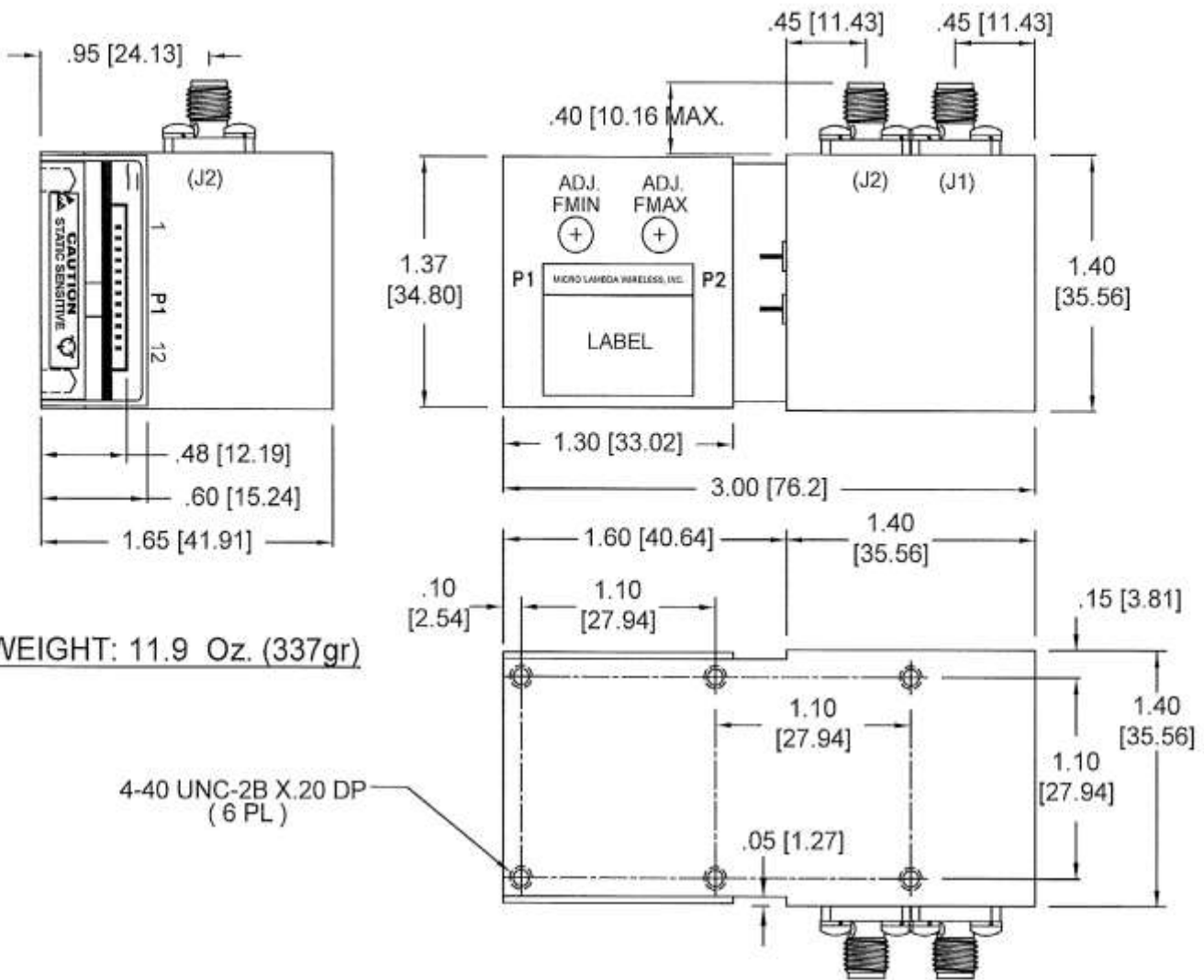
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MICRO LAMBDA WIRELESS, INC.

ANALOG OR SERIAL DRIVER WITH 1.7" X 1.2" BP FILTER

SIZE	CAGE No	QWG No	REV.
	ORN63	99 - 0021 - 179	A



WEIGHT: 11.9 Oz. (337gr)

4-40 UNC-2B X.20 DP
(6 PL)

INPUT

PIN	FUNCTION	P1 SERIAL MODEL
1	CONTROL-V 0-10V	CLOCK (SCLK)
2	CONTROL RETURN	DATA (MOSI)
3	N/C	SELECTn (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 ANGLES
 .XX ± .02
 .XXX ± .015

MATERIAL

FINISH

CONTRACT NO.

APPROVALS

DATE

DRAWN N. NGUYEN

6/10/2022

CHECKED DS

6/10/22

ISSUED



MICRO LAMBDA WIRELESS, INC.

ANALOG OR SERIAL DRIVER WITH 1.4" BR FILTER

SIZE

CAGE No
ORN63

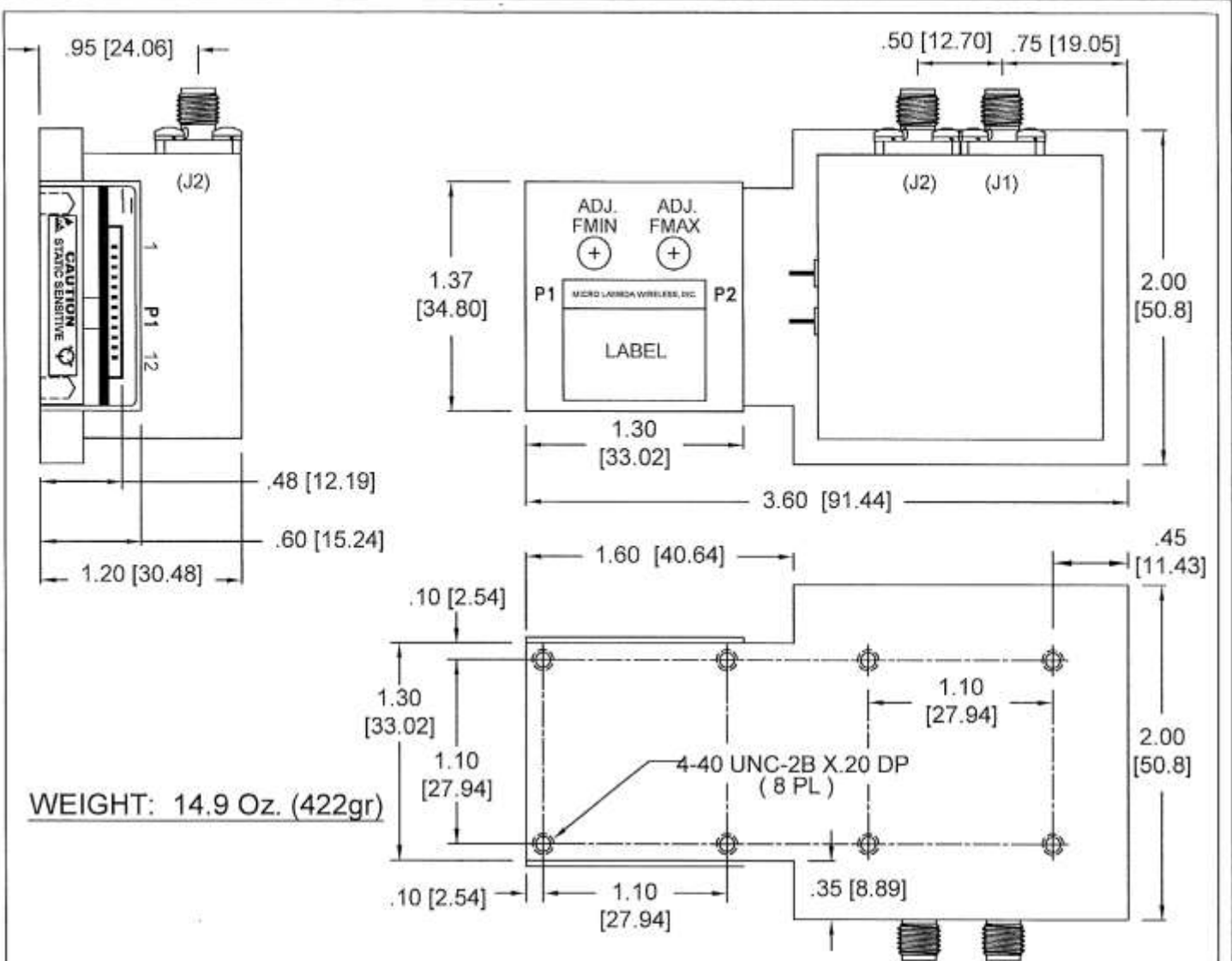
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99 - 0021 - 177

REV

A

DO NOT SCALE DRAWING



INPUT

PIN	FUNCTION	
	P1 ANALOG MODEL	P1 SERIAL MODEL
1	CONTROL-V 0-10V	CLOCK (SCLK)
2	CONTROL RETURN	DATA (MOSI)
3	N/C	SELECTn (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:

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

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
 TOLERANCES ARE:
 FRACTIONS DECIMALS ANGLES

 MATERIAL
 FINISH
 DO NOT SCALE DRAWING

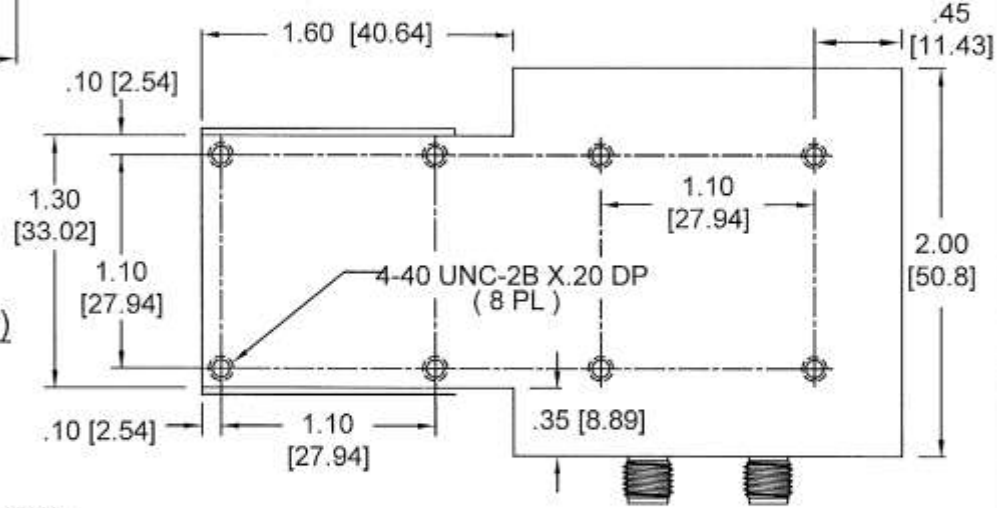
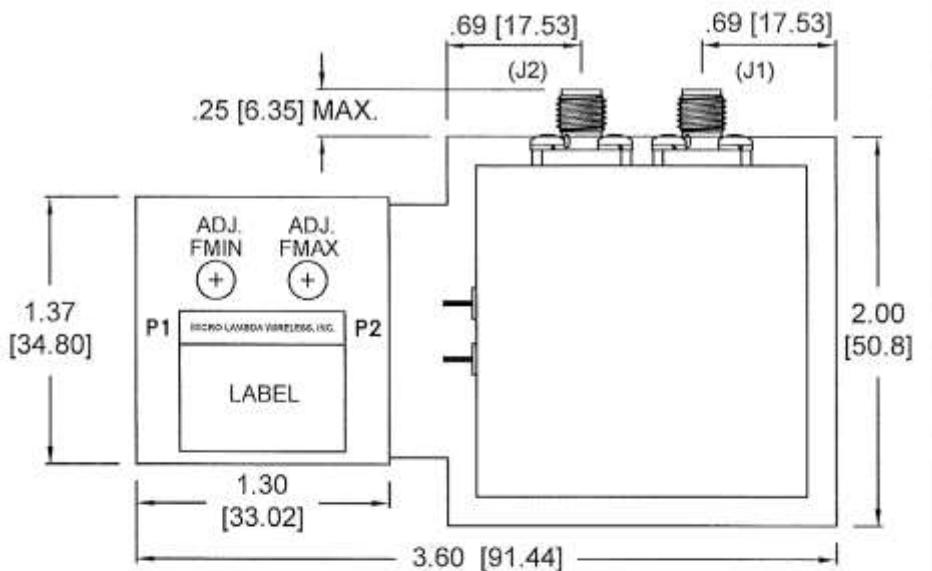
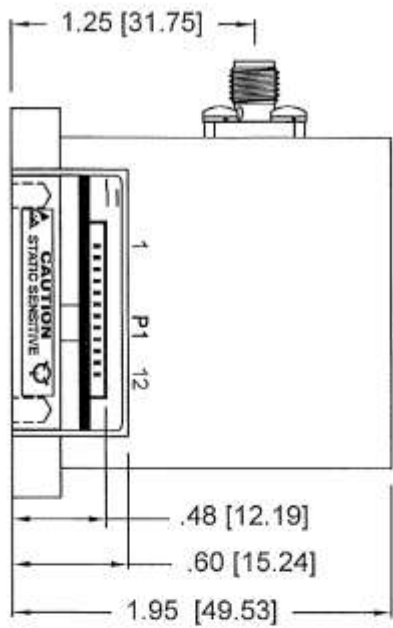
CONTRACT NO.	
APPROVALS	DATE
DRAWN N. NGUYEN	6/10/2022
CHECKED DS	6/10/22
ISSUED	



MICRO LAMBDA WIRELESS, INC.

ANALOG OR SERIAL DRIVER WITH 1.7" UN BR FILTER

SIZE	CAGE No	DWG. NO.	REV.
	ORN63	99 - 0021 - 175	A



WEIGHT: 21 Oz. (595gr)

INPUT

PIN	P1 ANALOG MODEL FUNCTION	P1 SERIAL MODEL FUNCTION
1	CONTROL-V 0-10V	CLOCK (SCLK)
2	CONTROL RETURN	DATA (MOSI)
3	N/C	SELECTn (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 ANGLES
 ±.02
 ±.010

MATERIAL:

FINISH:

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS: DRAWN: N. NGUYEN, CHECKED: DS, ISSUED:

DATE: 6/10/2022, 6/10/22



MICRO LAMBDA WIRELESS, INC.

ANALOG OR SERIAL DRIVER WITH 1.7" BR FILTER

SIZE: ORN63, CASE No: 99-0021-176, DWG. NO.: 99-0021-176, REV.: A