

## GENERAL

The Austron Model 1120 is a compact, rugged crystal oscillator designed for use in counters, synthesizers and communications systems. The Model 1120 employs a precision crystal mounted in a high-gain, solid-state DC proportional oven to assure minimal frequency shifts due to changes in the environment. Proportional oven control also assures freedom from frequency changes due to cycling thermostats. Crystal drive is held constant by a high-gain AGC system to assure good long-term aging. The Model 1120 features:

- $10^{-9}$ /day aging
- Excellent short-term stability
- Low phase noise
- Fast warm-up
- Good retrace
- Low power consumption

## TYPICAL SPECIFICATIONS

OUTPUT FREQUENCY: 1, 5, 10 MHz standard

OUTPUT VOLTAGE: 1 Vrms  $\pm 20\%$  into a 50 ohm load, sine wave. Short circuit protection.

AGING RATE: Model 1120-5  $5 \times 10^{-9}$ /24 hrs. after 72 hrs. continuous operation

Model 1120-2  $2 \times 10^{-9}$ /24 hrs. after 72 hrs. continuous operation

Model 1120-1  $1 \times 10^{-9}$ /24 hrs. after 72 hrs. continuous operation

RETRACE:  $\pm 1 \times 10^{-8}$  of previous frequency after 60 minutes operation following a 24-hour off time ( $\pm 5 \times 10^{-9}$  is typical)

### STABILITY:

Short-term:  $< 3 \times 10^{-11}$  for one second averaging time

As a function of

supply voltage:  $\pm 1 \times 10^{-9}$  for a  $\pm 10\%$  change from 27 Vdc

As a function of load:  $\pm 1 \times 10^{-9}$  for a  $\pm 10\%$  change from 50 ohms

As a function of

ambient temperature:  $< 1 \times 10^{-8}$  from  $-5^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$

$< 2 \times 10^{-8}$  from  $-20^{\circ}\text{C}$  to  $+65^{\circ}\text{C}$

INPUT VOLTAGE: 27 Vdc  $\pm 10\%$ , protected from polarity reversal

INPUT POWER:  $< 5$  watts during warm-up

$< 3$  watts operating at  $+25^{\circ}\text{C}$

TUNING RANGE: Mechanical:  $2.5 \times 10^{-6}$  minimum

### MECHANICAL:

Size:  $2.27 \times 2.14 \times 4$  inches ( $5.67 \times 5.35 \times 10$  cm)

Weight: 9 ounces (252 g)

Mounting: (4) 6-32 studs

Header: Octal

Sealing: Case is hermetically sealed. Mechanical adjustment via gasketed screw

Case: Steel

Finish: Gray lacquer

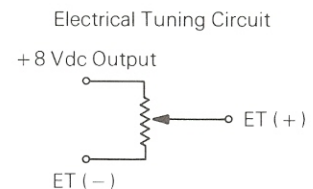
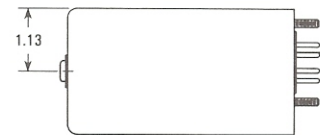
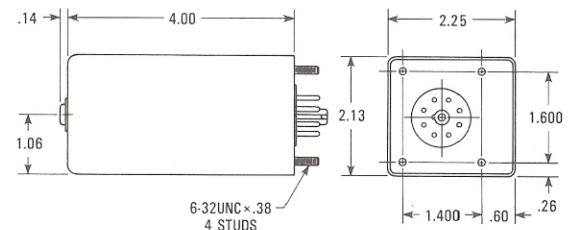
# MODEL 1120



## CRYSTAL OSCILLATOR

## PIN CONNECTIONS

- |                 |                         |
|-----------------|-------------------------|
| 1—DC Input (—)  | 5—Output (—)            |
| 2—+4 Vdc Output | 6—+8 Vdc Output         |
| 3—DC Input (+)  | 7—Electrical tuning (—) |
| 4—Output (+)    | 8—Electrical tuning (+) |



## OPTIONS

- Non-standard frequencies, input voltages, tuning ranges, etc.
- MIL-spec, JANTX, Radiation hardened
- Quality control — MIL-Q-9858A
- Various mechanical configurations

Please contact Austron with your exact requirements.

Technical specifications subject to change without notice.

Austron, Inc./U.S.A./10-86

OPERATING SPECIFICATIONS

## GENERAL:

BASIC TYPE 1120L PART NO 25210343  
 OUTPUT FREQ. 10 Mhz  
 CRYSTAL FREQ./TEMP. 10 Mhz /70°C TO 85°C  
 INPUT VOLTAGE 24 Vdc +/- 5%  
 OUTPUT VOLTAGE 1 Vrms +/- 10% @ 50 ohms  
 WAVEFORM SINE, HARMONICS <-40 dBc  
 OPERATION TEMPERATURE -20°C TO +50°C

## TUNING:

MECHANICAL TUNING > 1500X10-9  
 ELECTRICAL TUNING > 250X10-9, 1-7 Vdc

## STABILITY:

DRIFT RATE < 2X10-9/DAY @ 72 Hrs  
 FREQ. VS TEMP. < 2X10-8 OVER RANGE  
 FREQ. VS LOAD < 1X10-9 +/-10% LOAD CHANGE  
 FREQ. VS SUPPLY VOLTAGE <1X10-9 +/-5% CHANGE

## PHASE NOISE &amp; TIME DOMAIN STABILITY:

FREQ	(FREQ)	TAU	SIG. Y (TAU)
1 Hz	-95dB	10	5X10-12
10 Hz	-125dB	1	5X10-12
100 Hz	-145dB	.1	5X10-12
1K Hz	-160dB	.01	1X10-11
10K Hz	-160dB	.001	1X10-10

SPURIOUS < -100dBc, 10Hz-25K Hz

## POWER USAGE:

WARMUP < 10W

OPERATING 3W TYP. @25°C, STILL AIR

STABILIZATION TIME < 1 HOUR TO 1X10-8 OF FINAL FREQ.\* @25°C

\* FINAL FREQ. IS FREQ. 24 Hrs AFTER TURNON

## PIN CONNECTIONS:

1. GND	4. NC	7. ET-	SHA CONN. 10 Mhz
2. NC	5. NC	8. ET+	
3. +24 Vdc IN	6. +10 Vdc OUT	9. NC	

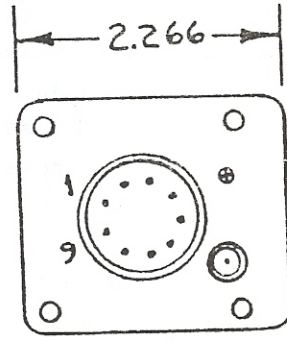
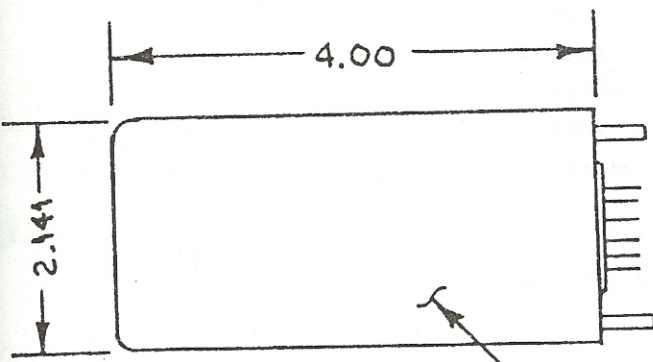
## ACCESSORIES:

TUNING TOOL 901000-5284

LABEL 12297097

NOTES: PAINT PER AUSTRON SPEC 12697263

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPD
	A	REDRAWN, RESPECIFIED PER ECO 9826	5/29/86	<i>[Signature]</i>
	B	REVISED PER ECO 9853	6/18/86	<i>[Signature]</i>



122 97087  
LABEL, THIS SURFACE

TOLERANCES UNLESS OTHERWISE SPECIFIED		
DEC	FRAC	ANG
±.030	/	/



SPECIFICATIONS, XTAL OSCILLATOR  
1120 L10, 10 MHz, 3RD O.T.  
METAL COLDWELD

Q.C.			SIZE	CODE IDENT NO.		REV
ENGR	<i>Bin. P</i>	5/29/86	2	24672	30296480	B
CHECK	<i>Holtz</i>	5/29/86	SCALE	NONE	SHEET 1 OF 2	
DRAWN	<i>CPL</i>	5-27-86				