

Specification	AXRB1003H	Rev.: 1	Date: 2018-10-30
Oscillator type: Very High Stability Rubidium Oscillator			

Features:

- Very High Stability Rubidium Oscillator
- Low Phase Noise
- Digital, Mechanical and Electronic Frequency Control
- Replacement for Spectratime LPRO
- RS-232 Communication Interface
- Applications: UMTS, LTE, 5G, CDMA, WiMAX etc.
- Equivalent to ELECSPN XHTF1003H



Ordering Code

Model	Revision	Frequency [MHz]
AXRB1003H	Rev.1	10.000

Example: AXRB1003H_Rev.1 – 10.000 MHz

Parameter	min.	typ.	max.	Unit	Condition
Nominal output frequency	10.000			MHz	
Frequency stability					
Initial tolerance at delivery @ +25°C			±0.05	ppb	
vs. operating temperature range			±0.30	ppb	steady state
Long term (aging) per day			±0.003	ppb	after 30 days operation
Long term (aging) per month			±0.03	ppb	after 30 days operation
Retrace @ +25°C			±0.02	ppb	1 h after 24 hrs OFF
Frequency adjustment range					
Digital Frequency Control (DFC)	±1.5			ppb	RS-232 interface (Note 2)
DFC Resolution	6.8·10 ⁻¹³				
Mechanical Frequency Control (MFC)	±2			ppb	Trimmer accessible at front
Electronic Frequency Control (EFC)	±2			ppb	Overrides DFC and MFC
EFC voltage V _c	0		5	V	
EFC slope (Δf / ΔV _c)	Positive				
EFC input impedance	10			kΩ	
RF output					
Signal waveform	Sine wave				
Load R _L	50			Ω	±5%
Output level	+5	+7	+9	dBm	
Harmonics			-30	dBc	
Phase noise			-80	dBc/Hz	@ 1 Hz
		-110	-90	dBc/Hz	@ 10 Hz
		-130	-125	dBc/Hz	@ 100 Hz
		-140	-135	dBc/Hz	@ 1 kHz
		-150	-145	dBc/Hz	@ 10 kHz
Short-term stability (ADEV)		4·10 ⁻¹²	2·10 ⁻¹¹		@ τ = 1 sec
		1·10 ⁻¹²	5·10 ⁻¹²		@ τ = 10 sec
		4·10 ⁻¹³	2·10 ⁻¹²		@ τ = 100 sec
Warm-up time @ +25°C		10	15	min	Time to lock
Lock Detect		0	1.5	V	Locked
	3.5	5		V	Not locked
Supply voltage V_s	22	24	32	V	
Power consumption (steady state)		10	15	W	@ V _s =24V
Power consumption (warm-up)			36	W	@ V _s =24V
Operating temperature range	-25		+50	°C	
Enclosure (see drawing) (WxDxH)	127x95x38			mm	
Drawing number	AXZ10.01125.01				
RF & Communication Connector	10-pin Feedthrough				
Weight		540	600	g	
MTBF	100,000			hrs	

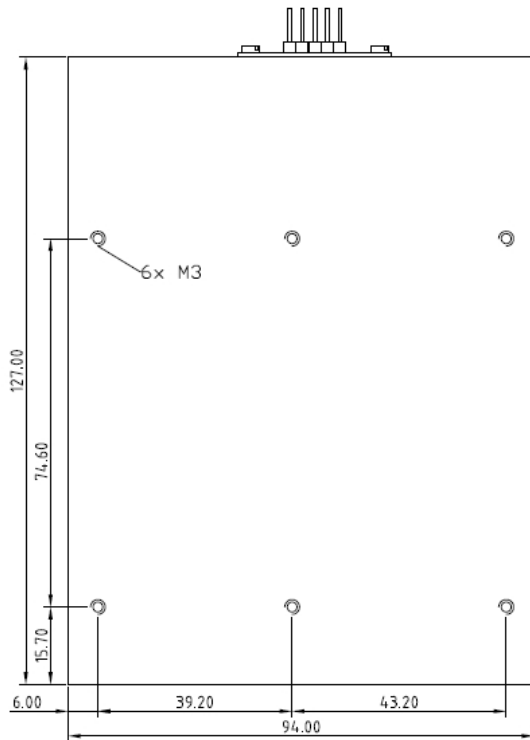
Notes:

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated
2. Please consult factory for programming manual

Absolute Maximum Ratings

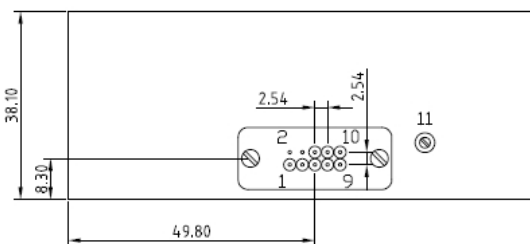
Parameter	min.	max.	Unit	Condition
Supply Voltage V_s	-0.5	32	V	V_s to GND
Control Voltage V_c	-0.5	7	V	V_c to GND
Storage Temperature	-55	+85	°C	

Enclosure drawing



Pin connections:

Pin #	Symbol	Function
1	RF OUT	10 MHz Output
2	GND	RF Ground
3	GND	RF Ground (AC coupled)
4	GND	Ground
5	RX	Serial Receive RS-232
6	LD	Lock Detect
7	V_c	Control Voltage (EFC)
8	GND	Supply Ground
9	TX	Serial Transmit RS-232
10	V_s	Supply Voltage
11	ADJUST	Adjustment Trimmer (MFC)



Handling and Testing

Parameter	Procedure		Source
Handling and Testing	Application Note AXAN-011		www.axtal.com
Processing	Application Note AXAN-012		www.axtal.com
Parameter	Procedure		Condition
Electrostatic discharge (ESD)			
THD devices	IEC60749-26	HBM	2000 V
SMD devices	IEC60749-27	MM	200 V
Washable	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
RoHS- Compliant	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Data sheet is for information purposes only and may be subject to modifications or may be discontinued without notice.

Revision History

Rev.	Drawing	Date [dd.mm.yyyy]	Remarks	Author	Checked
1	D0	30.10.2018	First issue	HH	ME