

Specification	AXRB1021	Rev.: 2	Date: 2018-11-27
----------------------	-----------------	---------	------------------

Oscillator type: High Stability Rubidium Oscillator

Features:

- High Stability Rubidium Oscillator
- Compact 89 x 76 mm Connectorized Package
- Replacement for Microsemi X72
- RS-232 Communication and external 1 PPS synchronisation
- Applications: UMTS, LTE, 5G, CDMA, WiMAX etc.
- Equivalent to ELECSYN XHTF1021



Ordering Code

Model	Revision	Frequency [MHz]
AXRB1021	Rev.2	10.000

Example: AXRB1021_Rev.2 – 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			±0.60	ppb	steady state
Long term (aging) per day			±0.005	ppb	after 30 days operation
Long term (aging) per month			±0.05	ppb	after 30 days operation
Retrace @ +25°C			±0.02	ppb	1 h after 24 hrs OFF
Frequency adjustment range					
Mechanical Frequency Control (MFC)	±1			ppb	Trimmer accessible at front
Electronic Frequency Control (EFC)	±1			ppb	Overrides 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	+7	+13		dBm	
Harmonics			-30	dBc	
Phase noise		-110	-100	dBc/Hz	@ 10 Hz
		-140	-130	dBc/Hz	@ 100 Hz
		-150	-140	dBc/Hz	@ 1 kHz
Short-term stability (ADEV)			3·10 ⁻¹¹		@ τ = 1 sec
			1·10 ⁻¹¹		@ τ = 10 sec
			3·10 ⁻¹²		@ τ = 100 sec
Warm-up time @ +25°C			7	min	Time to lock
1 PPS output					
Signal waveform	LVCMOS				
Load R _L	15			pF	
1 PPS reference input	External synchronisation				
Signal waveform	LVCMOS				
Input impedance	>10 kΩ / 4 pF				
Lock Detect		0	1.5	V	Locked
	3.5	5		V	Not locked
Supply voltage V_s	11.4	12.0	18.0	V	
Power consumption (steady state)		8	15	W	@ V _s =12V
Power consumption (warm-up)		21	30	W	@ V _s =12V
Operating temperature range	-20		+50	°C	
Enclosure (see drawing) (WxDxH)	89x76x28			mm	
Drawing number	AXZ10.01124.01				
RF Connector	SMA female				
Communication Connector (Note 2)	9-Pin D-Sub male with jack posts				
Weight		260	280	g	
MTBF	100,000			hrs	

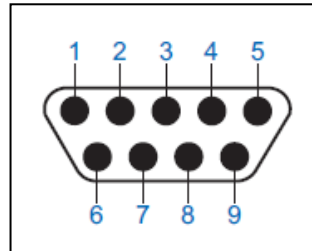
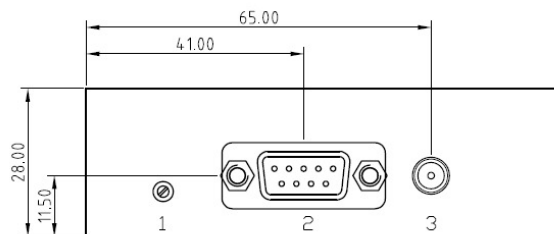
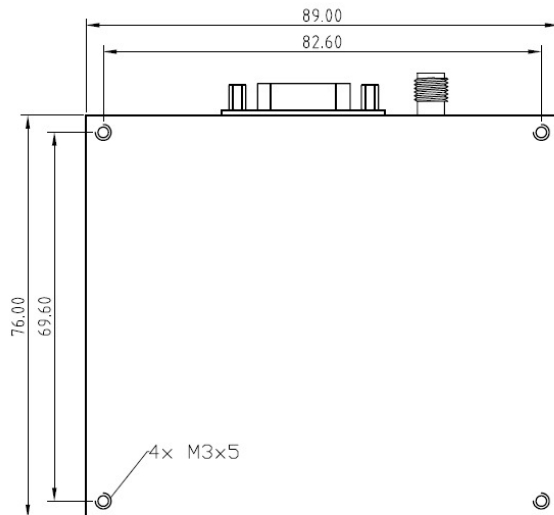
Notes:

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	18	V	V_s to GND
Control Voltage V_c	0	5.5	V	V_c to GND
Storage Temperature	-40	+70	°C	

Enclosure drawing



Front View D-Sub connector

Pin connections D-Sub connector (COMM):

Pin #	Symbol	Function
1	LD	Lock Detect
2	GND	Ground
3	RX	Serial Receive RS-232
4	TX	Serial Transmit RS-232
5	V_c	Control Voltage (EFC)
6	1PPS IN	External 1PPS Input
7	V_s	Supply Voltage
8	1PPS OUT	1PPS Output
9	D.N.C.	Do Not Connect

Pin connections:

Pin #	Symbol	Function
1	ADJUST	Adjustment Trimmer (MFC)
2	COMM	Interface
3	RF OUT	10 MHz Output

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
2	D0	27.11.2018	Tuning range, output level, warm-up time and typical power consumption changed	HH	HH