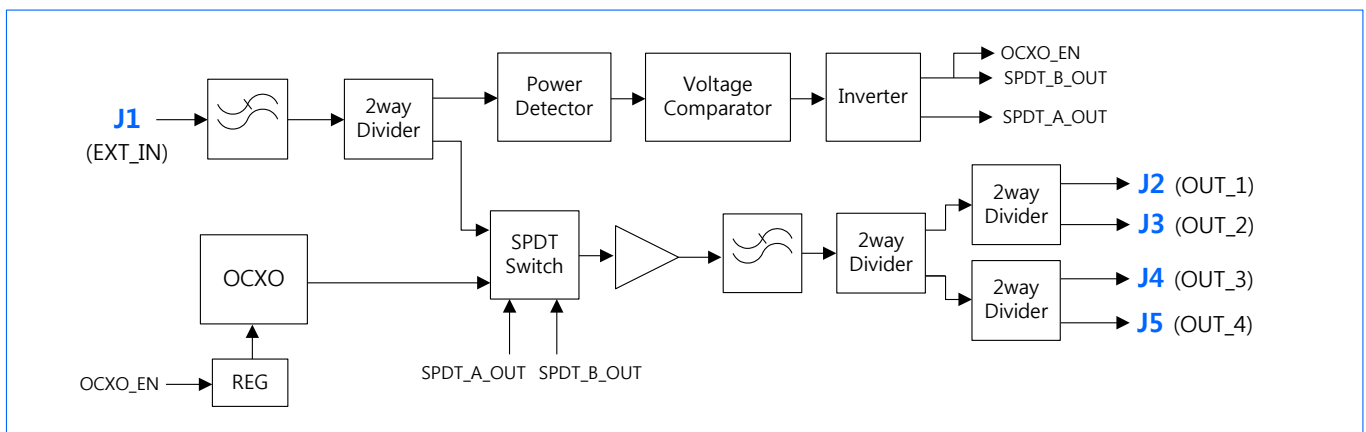
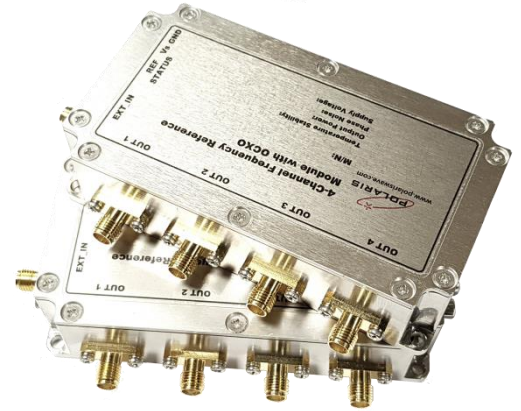


10 MHz 4-Channel Frequency Reference Module with OCXO



Descriptions

Polaris' PFRM-4-10 series is a 4-Channel Frequency Reference Module that provides a highly stable 10 MHz sine wave outputs. This series offers two Housing options depending on the type of connectors for the external interface. The OCXO with excellent performance, housed into this series provides a temperature stability from ± 25 ppb to ± 50 ppb over operating temperature range and aging of ± 100 ppb per year at 25°C.



Features

- ❖ 10 MHz Output Frequency
- ❖ Four Output Channels
- ❖ Sine Wave Output
- ❖ External Reference Automatic Switching
- ❖ Built in OCXO with Excellent Performance
- ❖ Various Options Available
- ❖ Affordable Price

Applications

- ❖ Frequency Reference Generation
- ❖ Phase Noise Measurements
- ❖ Military Electronic Systems
- ❖ SATCOM
- ❖ Instruments Frequency Synchronization
- ❖ Telecommunications Standards

Specifications for Standard Model

Parameter		Unit	Min.	Typ.	Max.	Remarks
External Reference Input	Frequency	MHz	10			
	Power into 50 ohm	dBm	-2	0	+2	
Frequency Calibration		ppm	-0.1		+0.1	
Frequency Stability	vs. Temperature (Note 1)		ppb	TS1 (See "Note 1")		See "Ordering Information"
	Vs. Aging	Daily	ppb	-3	+3	
		1st year	ppb	-100	+100	Aging after 30 days continuous operation
Output	Frequency	MHz	10			
	Power (Note 2)	dBm	8	10		See "Ordering Information"
	No. of Output Channels	-	4			
	Harmonics	dBc			-50	
	Spurious	dBc		-70	-60	
	Load Impedance	Ohm	50			
Phase Noise (Note 3)		dBc/Hz	ULN (See "Note 3")			See "Ordering Information"
Supply Voltage (Note 4)		Vdc	12		15	See "Ordering Information"
Current Consumption		mA	Consult Factory			Steady State
			Consult Factory			Warm-up
Warm Up Time		min		3	5	
Reference Switching Mode		-	Automatic			When an ext. reference is input.
Operating Temperature			TS1 (See "Note 1")			
Storage Temperature			-40 °C to 85 °C			
Housing (L x W x H)		mm	100.0 x 55.0 x 23.5			

Note 1

Option	Unit	Value	Operating Temperature	Remarks
TS1	ppb	±25	-20 °C to 70 °C	
TS2	ppb	±25	-40 °C to 75 °C	
TS3	ppb	±50	-10 °C to 60 °C	

Note 2 Available order from 0 dBm (Typ.) to 13 dBm (Typ.) in 1dB steps.

Note 3

Option	Frequency Offset	Unit	Min.	Typ.	Max.	Remarks
LN (Low Noise)	100Hz offset	dBc/Hz			-135	
	1KHz offset	dBc/Hz			-145	
	10KHz offset	dBc/Hz			-150	
	100KHz offset	dBc/Hz			-150	
	1MHz offset	dBc/Hz			-150	
ULN (Ultra-Low Noise)	100Hz offset	dBc/Hz			-150	
	1KHz offset	dBc/Hz			-160	
	10KHz offset	dBc/Hz			-170	
	100KHz offset	dBc/Hz			-170	
	1MHz offset	dBc/Hz			-170	

Note 4 Consult factory for ordering other Supply Voltages.

Ordering Information

❖ PFRM-4-10-TS-OP-PN-SV-HT

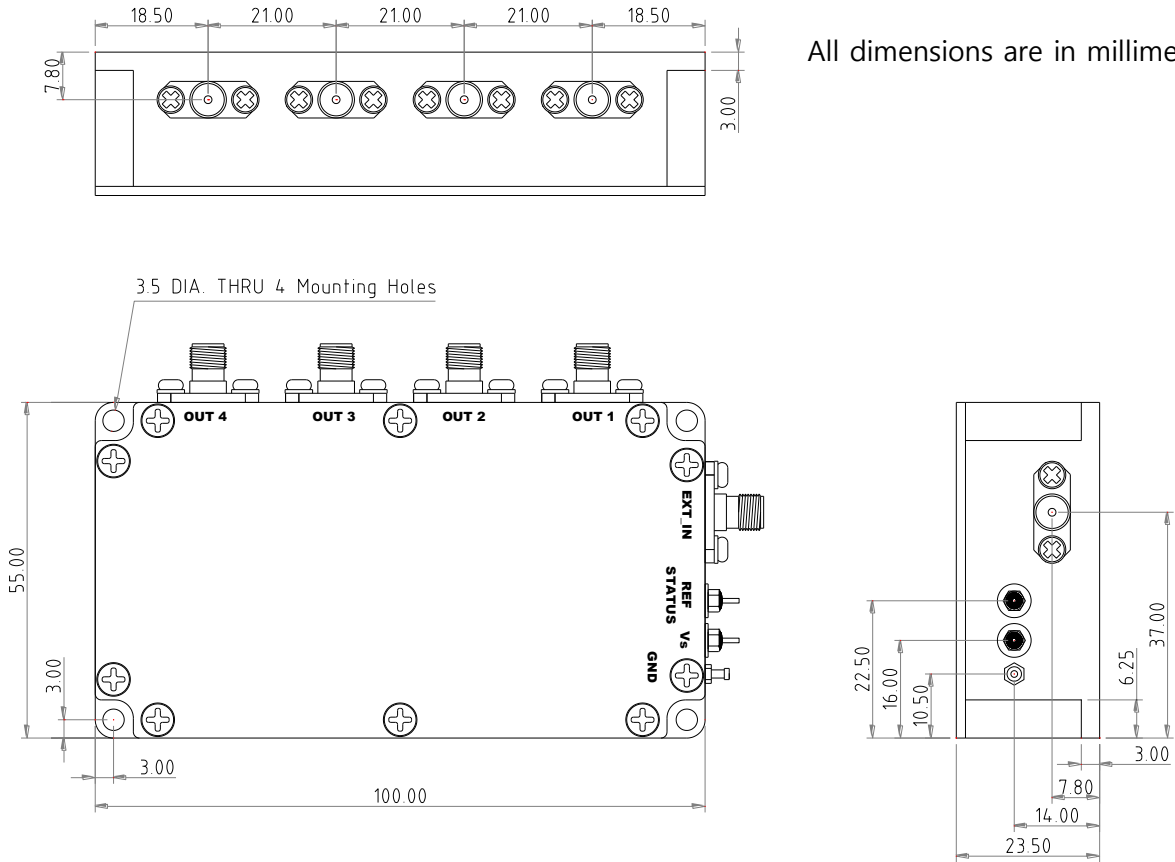
- **TS:** Frequency Stability vs. Temperature (ppb)
 - . TS1, TS2, or TS3: See "Note 1"
- **OP:** Output Power (dBm)
 - . 0 to 13 in 1 steps: See "Note 2"
- **PN:** Phase Noise (dBc/Hz)
 - . LN or ULN: See "Note 3"
- **SV:** Supply Voltage (Vdc)
 - . 12 to 15: See "Note 4"
- **HT:** Housing Type
 - . DS: Housing with 9 way D_Sub_Plug Connector
 - . FT: Housing with EMI Feed-thru Connectors

❖ Examples

- PFRM-4-10-TS1-05-ULN-12-FT
 - . Frequency Stability vs. Temperature: ± 25 ppb over -20 °C to 70 °C
 - . Output Power: 5 dBm
 - . Phase Noise: Ultra-Low Noise (See "Note 3")
 - . Supply Voltage: 12 Vdc
 - . Housing Type: Housing with EMI Feed-thru Connectors
- PFRM-4-10-TS2-10-LN-13-DS
 - . Frequency Stability vs. Temperature: ± 25 ppb over -40 °C to 75 °C
 - . Output Power: 10 dBm
 - . Phase Noise: Low Noise (See "Note 3")
 - . Supply Voltage: 13 Vdc
 - . Housing Type: Housing with 9 way D_Sub_Plug Connector

Housing Drawings

Housing with EMI Feed-thru connectors

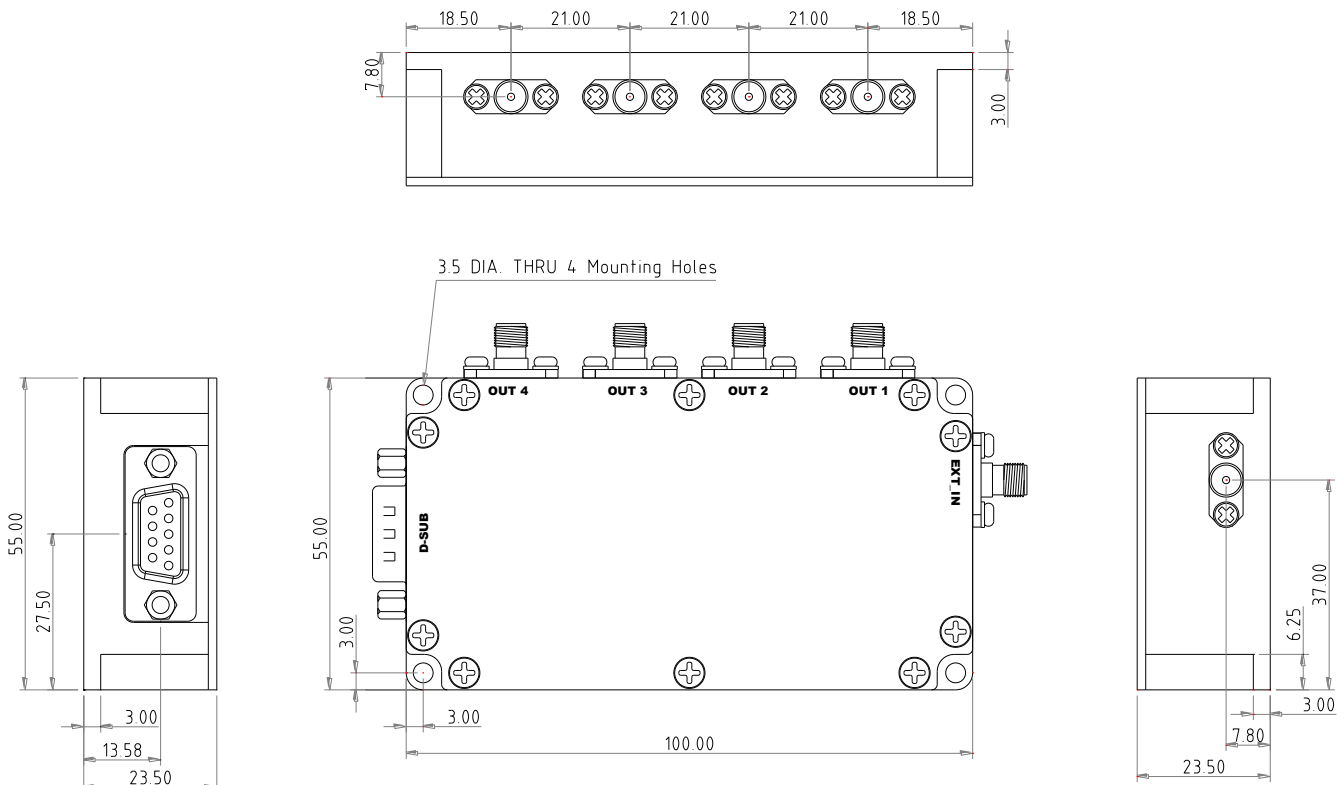


All dimensions are in millimeters.

Symbol	Connector	Description
EXT_IN	SMA-Jack, 50 ohm	External Reference Frequency Input (10 MHz)
OUT 1 to OUT 4	SMA-Jack, 50 ohm	RF Output (10 MHz)
Vs	EMI Feed-thru	Supply Voltage (+12 V)
REF STATUS	EMI Feed-thru	TTL "High" when operating with internal OCXO and TTL "Low" when operating with external reference
GND	Turret Thread Terminal	Ground

Housing Drawings

Housing with D_Sub Connector



All dimensions are in millimeters.

Symbol	Connector	Description
EXT_IN	SMA-Jack, 50 ohm	External Reference Frequency Input (10 MHz)
OUT 1 to OUT 4	SMA-Jack, 50 ohm	RF Output (10 MHz)
D_SUB	9 way D_Sub Plug	GND (Ground): P1 Vs (Supply Voltage, +12 V): P5, P9 INT_OCXO_ACTIVE (Note 3): P6 EXT_REF_ACTIVE (Note 4): P2 Not Used: P3, P4, P7, P8

(Note 3) INT_OCXO_ACTIVE: TTL "High" when operating with internal OCXO and
TTL "Low" when operating with external reference.

(Note 4) EXT_REF_ACTIVE: TTL "High" when operating with external reference and
TTL "Low" when operating with internal OCXO.

- Address: #1913, Anam tower, 311, Teheran-ro, Gangnam-gu, Seoul, Republic of Korea
- Tel: +82-2-2009-2120
- e-mail: info@polariswave.com
- web: www.polariswave.com