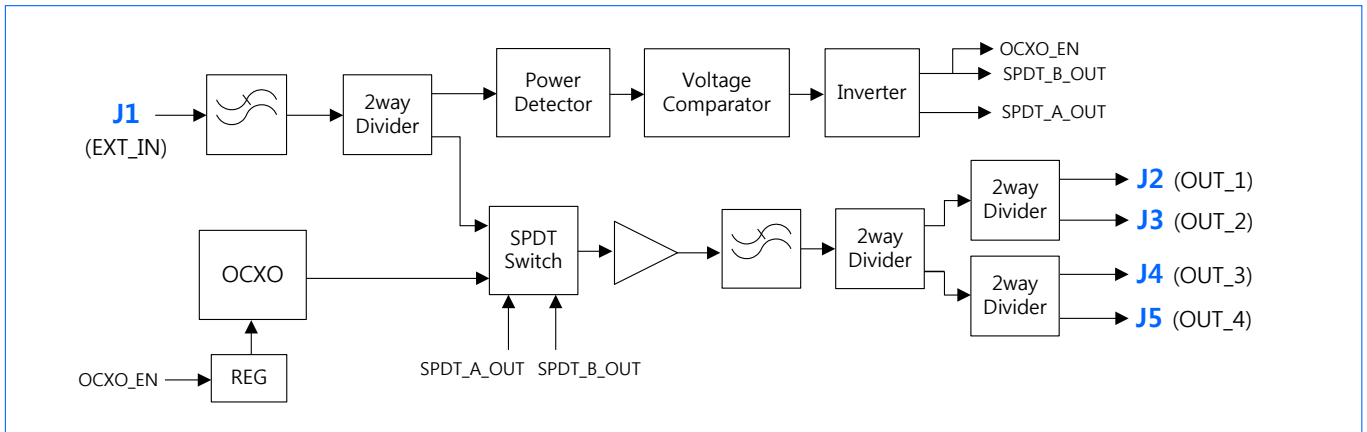


## Descriptions

The PFRM-4-10 series is a 4-channel frequency reference module that provides a highly stable 10 MHz sine wave outputs. This series is available in two housing options depending on the type of connectors for external interfaces. The OCXO with excellent performance, housed inside this series provides a temperature stability from  $\pm 10$  ppb to  $\pm 100$  ppb over operating temperature range.



## Features

- ❖ Four identical output channels
- ❖ 10 MHz Output
- ❖ Sine wave
- ❖ Internal OCXO with excellent performance
- ❖ Automatic input detection and switching for external reference
- ❖ Various options available

## Applications

- Frequency reference for oscillators
- Military electronic systems
- SATCOM
- External frequency synchronization of instruments
- Telecommunication standards

## Specifications

Parameter		Unit	Min.	Typ.	Max.	Remarks
Frequency Calibration		ppm	-0.1		+0.1	
Frequency Stability vs. Temperature		ppb	Note 1			
Output	No. of Output Channels	-	4			
	Frequency	MHz	10			
	Power	dBm	Note 2			
	Harmonics	dBc			-50	
	Spurious	dBc		-80	-70	
	Load Impedance	Ohm	50			
Phase Noise		dBc/Hz	Note 3			
Supply Voltage		Vdc	6 or 12			
Current Consumption	Steady State	mA	Consult Factory			
	Warm-up		Consult Factory			
Warm-up Time		min		3	5	
External Reference Input	Frequency	MHz	10			
	Power into 50 ohm	dBm	-2	0	+2	
External Reference Switching		-	Automatic detection and switching			
Operating Temperature			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

Temp. (°C)	Frequency Stability		Phase Noise		Remarks
-20 to 70	TS1	±100	ULN	LN	Consult factory to order other frequency stability
	TS2	±50	ULN	LN	
	TS3	±30		LN	
	TS4	±10		LN	
-40 to 75	TS5	±100	ULN	LN	
	TS6	±50		LN	
	TS7	±30		LN	

Note 2 Available order from 0 to 10 dBm in 1dB steps

Note 3

Option	Frequency Offset	Unit	Min.	Typ.	Max.	Remarks
LN (Low Noise)	100Hz offset	dBc/Hz		-140	-135	
	1KHz offset	dBc/Hz		-150	-145	
	10KHz offset	dBc/Hz		-155	-150	
	100KHz offset	dBc/Hz		-155	-150	
	1MHz offset	dBc/Hz		-155	-150	
ULN (Ultra-Low Noise)	100Hz offset	dBc/Hz		-155	-150	
	1KHz offset	dBc/Hz		-165	-160	
	10KHz offset	dBc/Hz		-170	-165	
	100KHz offset	dBc/Hz		-170	-165	
	1MHz offset	dBc/Hz		-170	-165	

## Ordering Information

### ❖ PFRM-4-10-TS-OP-PN-SV-HT

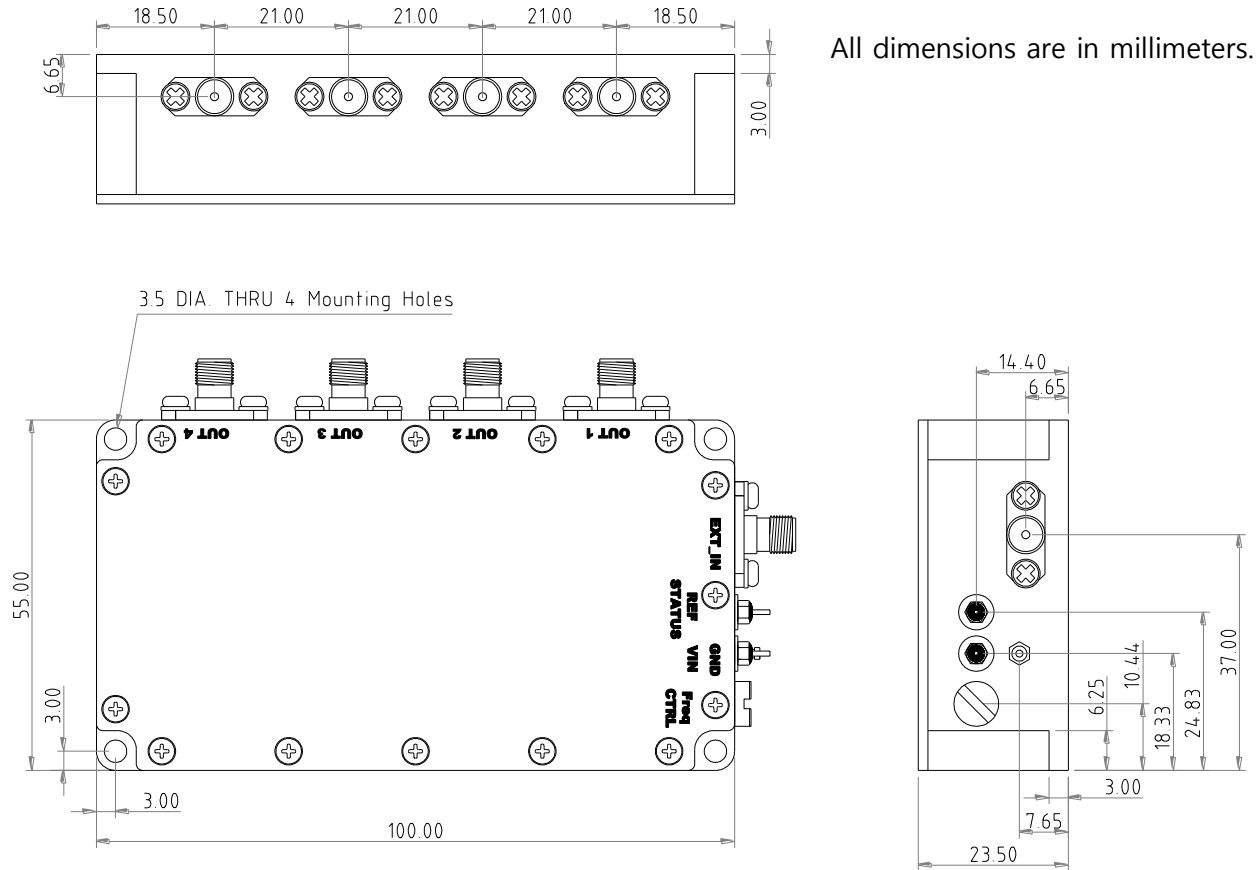
- TS: Frequency Stability vs. Temperature (ppb)
- OP: Output Power (dBm)
- PN: Phase Noise (dBc/Hz)
- SV: Supply Voltage (Vdc)
- HT: Housing Type
  - . DS: Housing with 9 way D\_Sub\_Plug Connector
  - . FT: Housing with EMI Feed-thru Connectors

### ❖ Examples

- PFRM-4-10-TS1-05-ULN-12-FT
  - . Frequency Stability vs. Temperature:  $\pm 100$  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-TS5-10-LN-6-DS
  - . Frequency Stability vs. Temperature:  $\pm 100$  ppb over  $-40$  °C to  $75$  °C
  - . Output Power: 10 dBm
  - . Phase Noise: Low Noise (See "Note 3")
  - . Supply Voltage: 6 Vdc
  - . Housing Type: Housing with 9 way D\_Sub\_Plug Connector

## Housing Drawings

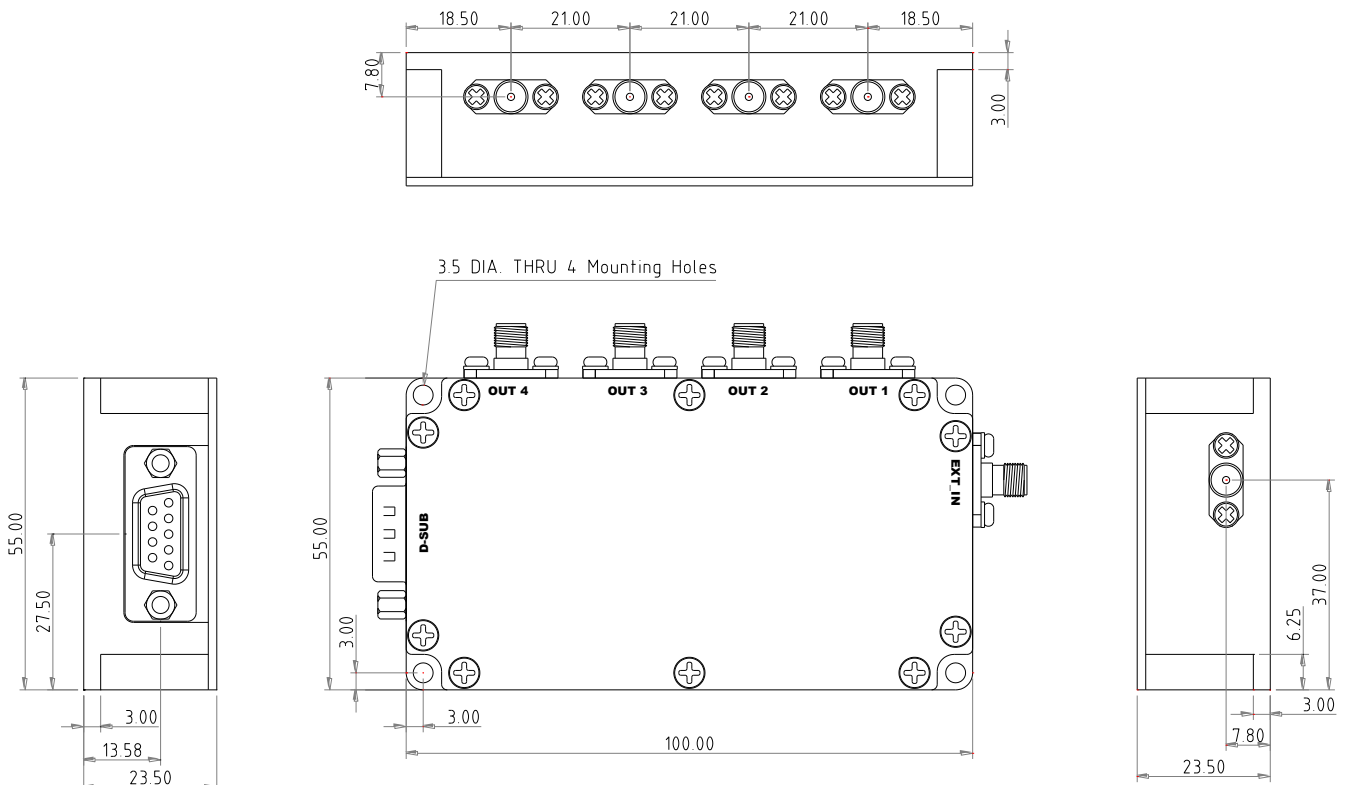
### Housing with EMI Feed-thru connectors



Marking	Connector	Description
EXT_IN	SMA-Jack, 50 ohm	External Reference Input
OUT 1 to OUT 4	SMA-Jack, 50 ohm	Four identical output channels
VIN	EMI Feed-thru	Supply Voltage
REF STATUS	EMI Feed-thru	TTL "High" when operating with internal OCXO and TTL "Low" when operating with external reference
Freq. CTRL	Flat Head Wrench Bolt	Electronic Frequency Control
GND	Turret Thread Terminal	Ground

## Housing Drawings

### Housing with 9 way D\_Sub\_plug connector



All dimensions are in millimeters.

Marking	Connector	Description
EXT_IN	SMA-Jack, 50 ohm	External Reference Input
OUT 1 to OUT 4	SMA-Jack, 50 ohm	Four identical output channels
D_SUB	9 way D_Sub Plug	GND: P1 EXT_REF_ACTIVE (Note 5): P2 FREQ_CTRL: P3 VIN: P5, P9 INT_OCXO_ACTIVE (Note 4): P6 Not Used: P4, P7, P8

(Note 4) INT\_OCXO\_ACTIVE: TTL "High" when operating with internal OCXO and  
TTL "Low" when operating with external reference.

(Note 5) EXT\_REF\_ACTIVE: TTL "High" when operating with external reference and  
TTL "Low" when operating with internal OCXO.

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