

Description

The CC-FRQC is a frequency counter and power meter module that has a control interface via the CalBench control centre. It simplifies test setups by enabling synchronized frequency and power measurements, making it suitable for product and device evaluation and repair work.

The 6000 MHz frequency counter offers wide range frequency measurement for electrical/electronic test work and R&M applications. It can be operated synchronized with an external 10 MHz reference signal or independently, using its own internal reference.

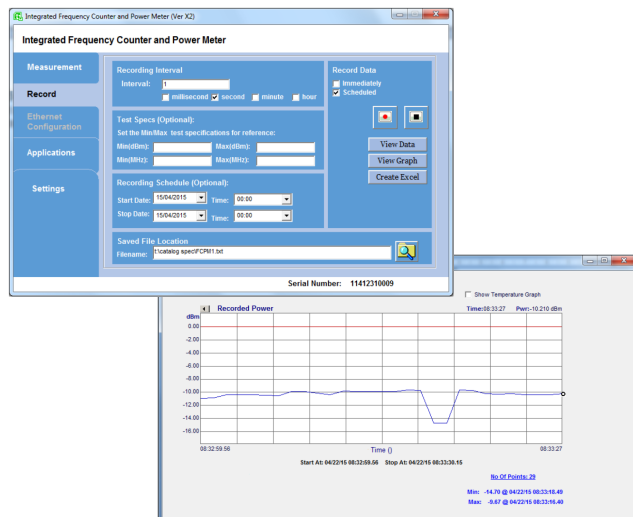
The connection module typically situates next to the control centre. The software application provides an intelligent interface with various features for measurements, recording, logging and analysis.

Features

- Frequency counter and power meter module
- Operated via CalBench control centre application
- Frequency range: 1 to 6000 MHz
- Power measurement: -30 dBm to +20 dBm
- Suitable for electronic test and R&M applications
- Frequency aging: ± 1.0 ppm/year (internal reference)
- Can be used with an external 10 MHz reference signal
- Sample time: 0.1 to 3 secs
- Input impedance: 50 Ω
- Compact 50 mm wide module

Software Interface Features

- Auto synchronized power & frequency measurements
- Relative and Average power measurements
- Set power & frequency measurement speeds independently
- Frequency & power measurement data recording
- Measurement application tools
- Online graphical display of power measurement



**Electrical Specifications (CW) ¹, -30 dBm to +20 dBm, 1 to 6000 MHz**

Parameter		Freq. Range (MHz)	Min.	Typ.	Max.	Units
Dynamic range ^{2,3,4}	@ 25°C	1 - 5700	-30	-	+20	dBm
		5700 - 6000	-28	-	+20	
	@ 0°C to 50°C	1 - 6000	-27	-	+20	
VSWR		1 - 6000	-	1.05	1.25	:1
Uncertainty of Power Measurement @ 25°C	@ -30 to +5 dBm ^{5,6}	1 - 3000	-	± 0.10	± 0.30	dB
		3000 - 6000	-	± 0.15	± 0.30	dB
	@ +5 to +15 dBm	1 - 3000	-	± 0.15	± 0.30	dB
		3000 - 6000	-	± 0.15	± 0.30	dB
	@ +15 to +20 dBm	1 - 3000	-	± 0.20	± 0.40	dB
		3000 - 6000	-	± 0.20	± 0.40	dB
Uncertainty of Power Measurement @ 0°C to 50°C	@ -30 to +5 dBm ^{5,6}	1 - 3000	-	± 0.25	-	dB
		3000 - 6000	-	± 0.25	-	dB
	@ +5 to +15 dBm	1 - 3000	-	± 0.20	-	dB
		3000 - 6000	-	± 0.20	-	dB
	@ +15 to +20 dBm	1 - 3000	-	± 0.35	-	dB
		3000 - 6000	-	± 0.30	-	dB
Power Linearity @ 25°C		1 - 6000	-	± 3.0	-	%
Power Resolution		1 - 6000	0.01	-	-	dB
Frequency Resolution		1 - 40 MHz	-	1	-	Hz
		40-190 MHz	-	10	-	
		190-6000 MHz	-	100	-	
Frequency Uncertainty (@ 1 sec measurement sample time) ^{4,7}		1 - 40 MHz	-	±2	-	Hz
		40-190 MHz	-	±20	-	
		190-1400 MHz	-	±200	-	
		1400 - 6000 MHz	-	±800	-	
Averaging Range		1 - 6000	1	-	999	-
Frequency Aging	Using int. Reference	-	-	-	±1.0	ppm/year
Measurement Speed (for power meas.)	@ Low Noise Mode	1 - 6000	-	100	-	msec
	@ Faster Mode		-	30	-	
Sample time (for frequency meas.) ⁸		-	100	1000	3000	msec
Input Impedance		-	-	50	-	Ω
Reference In Frequency		-	-	10	-	MHz
Reference In Impedance		-	-	50	-	Ω
Reference In Power		-	-5	-	+10	dBm

¹ All specifications apply to continuous wave (CW) signals.² Maximum continuous safe operational power limit: +23 dBm. Performance is guaranteed up to +20 dBm.³ The CC-FRQC can operate down to -32 dBm, however performance is guaranteed only in the range specified in the table.⁴ Minimum power for Frequency measurement at 190-240 MHz may degrade by up to 3 dB due to measurement band switching.⁵ When using Faster mode at high frequencies below -20 dBm, use of averaging is recommended to prevent noise errors.⁶ When using Faster mode power reading below -20 dBm, uncertainty value may increase by up to 0.2 dB relative to Low noise mode power reading.⁷ Accuracy shown using external 10 MHz reference synchronized to test signal. Using Internal Reference adds 2 ppm of tested frequency to the accuracy values shown.⁸ Software function set by user, default option 1000 msec.**Absolute Maximum Ratings**

Parameter	Ratings
Operating Temperature	0°C to 50°C
Storage Temperature	-30°C to 70°C
V _{USB} Max.	6 V
DC Voltage @ RF port	15 V
RF Power(CW) @ RF port	+25 dBm
DC Voltage @ Reference Input	25 V
RF Power(CW) @ Reference Input	+13 dBm

Permanent damage may occur if any of these limits are exceeded. Operating in the range between operating power limits and absolute maximum ratings for extended periods of time may result in reduced life and reliability.

Connections

Reference Input:	BNC Female
Signal Input:	SMA Female
Power:	Internal to Control Centre

Module Details

Connection Module:	Width 50mm
Control Centre:	Ordered separately
Software:	Pre-installed on Control Centre

Due to continuous development Time Electronics reserves the right to change specifications without prior notice.