

# UBX-M8030-KT-FT

Standard Professional Automotive

## u-blox M8 time & frequency reference GNSS chip

### Leading performance under poor signal conditions

- Concurrent reception of GPS/QZSS, GLONASS, BeiDou
- Direct control of system reference oscillator disciplined by GNSS
- Accurate measurement and control of external oscillators
- Industry leading acquisition sensitivity and single-satellite timing
- Automatic hold-over
- Prepared for integration with external PTP, Sync-E and network listen



UBX-M8030-KT-FT  
5.00 x 5.00 x 0.59 mm

### Product description

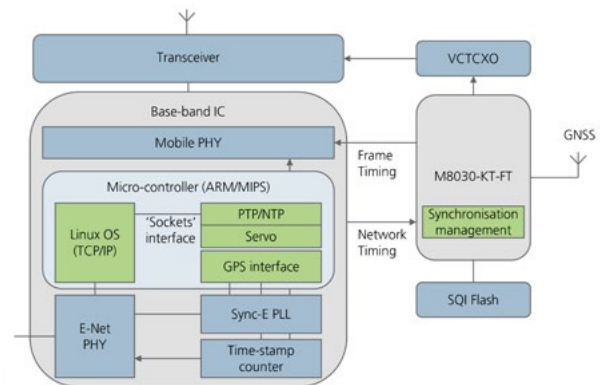
u-blox time and frequency products provide multi-GNSS synchronization for cost-sensitive network edge equipment including Femto wireless base-stations. The M8030-KT-FT IC provides a complete GNSS receiver and reference frequency control function. This single-chip RF and baseband IC requires few external components: just a low-cost SQI Flash for program and parameter storage and passive components.

The M8030-KT-FT can control a system reference VCTCXO directly via its in-built PWM DAC, providing both frequency and phase coherence with the best available source of synchronization. Additional remote oscillators may be controlled via a second DAC (DDC) or via the host system. External sources of synchronization are supported through time-pulse and frequency inputs and a message interface. This allows measurements from macro-sniff, Sync-E, or packet timing to be combined with measurements from GNSS.

u-blox time and frequency products include timing integrity alarms that report phase and frequency uncertainty both during normal operation and hold-over. They feature a high dynamic range radio with both analog and digital interference mitigation supporting their inclusion as an integral part of a local area base station design.

### Example application (Residential Femto Cell)

In a Femto-Cell application, the M8030-KT-FT can make fine adjustments to the master reference frequency oscillator to precisely align the Femto-cell transmit framing with a phase reference from GNSS or PTP. In the absence of a reliable source of synchronization, the M8030-KT-FT automatically manages hold-over based on the stability of the oscillator selected, allowing the Femto-cell to continue transmissions. The M8030-KT-FT estimates phase and frequency uncertainty continuously during hold-over so the host system can decide when to discontinue transmission.



### Product selector

Model	Package	Type	Supply	Interfaces	Features	Grade
	Package	GPS / QZSS GLONASS Galileo BeiDou Timing Dead Reckoning Precise Point Positioning Raw Data	3.0 V – 3.6 V	UART USB SPI DDC (I <sup>2</sup> C compliant)	Programmable (Flash) Data logging RTC crystal Oscillator Antenna supply & supervisor VCTCXO support	Standard Professional Automotive
<b>UBX-M8030-KT-FT</b>	QFN40	• • • •	•	• • • •	S V •	

S = supported, requires external components

V = VCTCXO support

## Features – GNSS

Receiver type	72-channel u-blox M8 engine GPS/QZSS L1 C/A, GLONASS L10F, BeiDou B1 SBAS L1 C/A: WAAS, EGNOS, MSAS Galileo-ready E1B/C (firmware upgrade required)		
	<b>GPS</b>	<b>GLONASS</b>	
Accuracy	2.5 m CEP < 4 m CEP		
Time to fix	Cold starts:	26 s	30 s
	Hot/Aided starts:	1 s	3 s
Sensitivity	Tracking:	-165 dBm	-165 dBm
	Cold start (aided):	-157 dBm	-148 dBm
	(autonomous):	-148 dBm	-145 dBm
	Reacquisition:	-160 dBm	-157 dBm
Assistance	AssistNow Online OMA SUPL & 3GPP compliant interface		
Oscillator	Supports VCTCXO		
LNA	Built-in		
Anti jamming	Active CW detection and removal		
Supported antennas	Active and passive		
External SQI Flash	Required for firmware storage and upgrade		

## Features – synchronization

Frequency control:	PWM DAC to control external VCTCXO		
Frequency control (primary oscillator)	GNSS locked:	< 5 ppb	
	Frequencies:	19.2, 26, 30.72 MHz	
	Hold-over:	Determined by oscillator	
Frequency control (additional oscillator option)	GNSS locked:	< 5 ppb	
	Frequencies:	10, 13, 19.2, 20, 26, 30.72, 40 MHz	
	Hold-over:	Determined by oscillator	
Phase control	Clear sky:	< 20 ns	
	Indoor:	< 500 ns typ.	
Time-pulse input	Resolution:	< 50 ns	
Time-pulse output	Jitter:	< 2 ns	

## Electrical data

Supply voltage	3.0 V to 3.6 V
Power Consumption	30 mA @ 3.3 V

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## Package

UBX-M8030-KT-FT:	40 Pin QFN, 5.00 x 5.00 x 0.59 mm
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## Environmental data, quality & reliability

Operating temp.	-20°C to +70°C
Storage temp.	-40°C to +125°C
Humidity	JEDEC MSL 1
RoHS compliant (lead-free) and green (no halogens)	
Manufactured in ISO/TS 16949 certified production sites	

## Interfaces

Serial interfaces	SPI or UART and DDC (I <sup>2</sup> C compliant)
	USB v2.0 full speed (ext. voltage regulator)
Protocols	NMEA, UBX binary, RTCM
External DAC	Dedicated DDC (master)
Timing interfaces	Timepulse output
	2x timepulse/frequency inputs

## Support products

u-blox M8 Evaluation Kits:

Easy-to-use kits to get familiar with u-blox M8 positioning technology, evaluate functionality, and visualize GNSS performance.

EVK-M8F	u-blox M8 GNSS Evaluation Kit for Time and Frequency reference
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## Product variants

UBX-M8030-KT-FT	u-blox M8 GNSS chip, Time & Frequency reference, 40 Pin QFN
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## Further information

For contact information, see [www.u-blox.com/contact-us](http://www.u-blox.com/contact-us).

For more product details and ordering information, see the product data sheet.