Timing and high precision GNSS modules

	Timing modules						High precision GNSS, dead reckoning, and correction modules						
	RCB-F9T	ZED-F9T	LEA-F9T	LEA-M8F	LEA-M8T	NEO-M8T	NEO-M8P-0	NEO-M8P-2	NEO-D9S	ZED-F9P	ZED-F9H	ZED-F9K	ZED-F9R
Grade													
Automotive									•			•	
Professional		•	•	•	•	•	•	•	•	•	•		•
Standard	•												
Physical													
Image													
Size [mm]	31.7 x 67.2	17 x 22 x 2.4	17.0 x 22.4 x 2.4				12.2 x 16.0 x 2.4			17 x 22 x 2.4			
Package & pins	8 pins	LGA 54	LCC 28				LCC 24			LGA 54			
GNSS													
GPS / QZSS	•	•	•	•	•	•	•	•		•	•	•	•
GLONASS	•	•	•	•	•	•	•	•		•	•	•	•
Galileo	•	•	•		•	•				•	•	•	•
BeiDou	•	•	•	•	•	•	•	•		•	•	•	•
Number of concurrent GNSS	4	4	4	2	3	3	2	2		4	4	4	4
Multi-band	*	*	**							•	•	•	•
Interfaces													
UART	1	2	1	1	1	1	1	1	2	2	2	2	2
USB		1	1	1	1	1	1	1	1	1	1	1	1
SPI		1	1	1	1	1	1	1	1	1	1	1	1
DDC (I2C compliant)		1	1	1	1	1	1	1	1	1	1	1	1
Features													
Programmable (flash)	•	•	•	•	•	•	•	•	•	•	•	•	•
Data logging	•	•	•		•	•	•	•		•	•		
Carrier phase output	•	•	•		•	•	•	•		•			•
Additional SAW	•	•	•	•	•	•	•	•	•	•	•	•	•
Additional LNA			•	•		•	•	•					
RTC crystal	•	•	•		•	•	•	•	•	•	•	•	•
Oscillator	T	T	T	V	T	T	T	T	T	T	T	T	T
RTK rover							•	•		•		•	•
RTK base station								•		•			
Moving base							•	•		•			
Survey-in and fixed mode	•	•	•	•	•	•		•		•			
Built-in sensor												•	•
Time pulse	2	2	2	1	2	2	1	1		1	1	1	1
Time mark input		2	2	2	2	2	1	1		1	1	1	1
Frequency output				•									
Power supply													
2.7 V – 3.6 V	•	•	•		•	•	•	•	•	•	•	•	•
3.0 V – 3.6 V				•									

* = Versions available for L1/L2/E5b or L1/L5/E5a band support
** = L1/L2/E5b and L1/L5/E5a band support

T = TCXO V = VCTCXO

GNSS chips

	Dead reckoning and high precision GNSS chips			Standard precision GNSS chips							
	UBX-M8030-KA-DR	UBX-M8030-KT-DR	UBX-F9940-KA-DR	UBX-M10050-KB	UBX-M9140-KA	UBX-M9140-KB	UBX-M8230-CT	UBX-M8030-CT	UBX-M8030-KA	UBX-M8030-KT	UBX-G8020-KT
Grade											
Automotive	*		•		*				*		
Professional		•		•		•				•	•
Standard							•	•			
Physical											
Image											
Size [mm]	5.0 x 5.0 x 0.59			4.0 x 4.0 x 0.55	5.0 x 5.0 x 0.59		2.99 x 3.21 x 0.36		5.0 x 5.0 x 0.59		
Package & pins	QFN40			QFN28	QFN40		WL-CSP47		QFN40		
GNSS											
GPS / QZSS	•	•	•	•	•	•	•	•	•	•	•
GLONASS	•	•	•	•	•	•	•	•	•	•	•
Galileo	•	•	•	•	•	•	cm	•	•	•	
BeiDou	•	•	•	•	•	•	•	•	•	•	
Number of concurrent GNSS	3	3	4	4	4	4	3	3	3	3	1
Multi-band			•								
Interfaces											
UART	1	1	2	1	2	2	1	1	1	1	1
USB	1	1	1		1	1		1	1	1	1
SPI	1	1	1	1	1	1	1	1	1	1	1
DDC (I2C compliant)	1	1	2	1	1	1	1	1	1	1	1
Features											
Programmable (flash)	•	•	•		S	S		S	S	S	
Data logging	•	•			S	S	S	S	S	S	S
Data batching				•	•	•	•				
RTC crystal	S	S	•	S	S	S	S	S	S	S	S
Oscillator	C/T	C/T	T	C/T	T	T	T	C/T	C/T	C/T	C/T
Antenna supply and supervisor	S	S	S	S	S	S		S	S	S	S
RTK rover			•								
Time pulse	2	2	2	1	2	2		2	2	2	2
Power supply											
1 V – 1.8 V				•							
1.4 V – 3.6 V	•	•					•	•	•	•	•
1.65 V – 2.0 V					•	•					
1.65 V – 3.6 V			•								
2.25 V – 3.6 V					•	•					

* = Operating temperature -40 °C to +105 °C
cm = Only supported in continuous mode

C/T = Crystal and TCXO supported
T = TCXO (supported in chip)
C = Crystal

S = Supported, may require ext. components

Standard precision GNSS modules

P

	Standard precision GNSS SiP modules						Standard precision GNSS modules							
	ZOE-M8B	ZOE-M8G	ZOE-M8Q	EVA-M8M	EVA-M8Q	EVA-8M	MAX-M10S	MAX-M10M	MAX-M8C	MAX-M8Q	MAX-M8W	MAX-8C	MAX-8Q	LEA-M8S
Grade														
Automotive														
Professional	•	•	•	•	•	•	•	•	•	•	•	•	•	
Standard														
Physical														
Image														
Size [mm]	4.5 x 4.5 x 1.0			7.0 x 7.0 x 1.1			9.7 x 10.1 x 2.5							17.0 x 22.4 x 2.4
Package & pins	S-LGA 51			LGA 43			LCC 18							LCC 28
GNSS														
GPS / QZSS	•	•	•	•	•	•	•	•	•	•	•	•	•	•
GLONASS	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Galileo	cm	•	•	•	•		•	•	•	•	•			•
BeiDou	•	•	•	•	•		•	•	•	•	•			•
Number of concurrent GNSS	3	3	3	3	3	1	4	4	3	3	3	1	1	3
Interfaces														
UART	1	1	1	1	1	1	1	1	1	1	1	1	1	1
USB				1	1	1								1
SPI	1	1	1	1	1	1								
DDC (I2C compliant)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Features														
Programmable (flash)		E	E	E	E									
Data logging	E	E	E	E	E	E								
Data batching	•						•	•						
Additional SAW	•	•	•				•							•
Additional LNA	•	•	•				•							
RTC crystal	o	o	o	o	o	o	•	•	♦	•	•	♦	•	•
Oscillator	T	T	T	C	T	C	T	C	C	T	T	C	T	T
Built-in antenna supply and supervisor											•			•
Time pulse		1	1	1	1	1	1	1	1	1	1	1	1	1
Power supply														
1.71 V – 1.89 V	•	•												
1.8 V – 5.5 V								•						
1.65 V – 3.6 V				•		•			•			•		
2.7 V – 3.6 V			•		•		•			•	•		•	•

cm = Only supported in continuous mode

E = External flash required

o = Optional, or requires external components
♦ = Yes, but with higher backup current

C = Crystal
T = TCXO

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u-blox

Standard precision and dead reckoning GNSS modules

	Dead reckoning GNSS modules				Standard precision GNSS modules and antenna modules									
	EVA-M8E	NEO-M9L	NEO-M8L	NEO-M8U	NEO-M9N	NEO-M8J	NEO-M8M	NEO-M8N	NEO-M8Q	NEO-M8Q-01A	NEO-8Q	CAM-M8C	CAM-M8Q	SAM-M8Q
Grade														
Automotive		•	•							*				
Professional	•		•	•	•	•	•	•	•		•	•	•	•
Standard														
Physical														
Image														
Size [mm]	7 x 7 x 1.1	12.2 x 16.0 x 2.4			12.2 x 16.0 x 2.4							9.6 x 14.0 x 1.95		15.5 x 15.5 x 6.3
Package & pins	LGA 43	LCC 24			LCC 24							LCC 31		LGA 20
GNSS														
GPS / QZSS	•	•	•	•	•	•	•	•	•	•	•	•	•	•
GLONASS	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Galileo	•	•	•	•	•	•	•	•	•	•		•	•	•
BeiDou	•	•	•	•	•	•	•	•	•	•		•	•	
Number of concurrent GNSS	3	4	3	3	4	3	3	3	3	3	1	3	3	3
Interfaces														
UART	1	2	1	1	1	1	1	1	1	1	1	1	1	1
USB	1	1	1	1	1	1	1	1	1	1	1			
SPI	1	1	1	1	1	1	1	1	1	1	1	1	1	
DDC (I2C compliant)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Features														
Programmable (flash)	E	•	•	•	•	•		•						
Data logging	E	•	•	•	•	•		•						
Additional SAW					•	•		•	•		•	•	•	•
Additional LNA					•	•		•	•		•	•	•	•
RTC crystal	o	•	•	•	•	•	•	•	•	•	•	♦	•	•
Oscillator	T	T	C, T	C	T	C	C	T	T	T	T	C	T	T
Built-in antenna												•	•	•
Built-in antenna supply and supervisor		S	S	S										
Time pulse	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Built-in sensor		•	•	•										
Power supply														
1.65 V – 3.6 V							•					•		
2.7 V – 3.6 V	•		•	•	•	•		•	•	•	•		•	•
3.0 V – 3.6 V		•	•											

o = Optional, or requires external components
♦ = Yes, but with higher backup current
E = External flash required

* = Operating temperature -40 °C to +105 °C
S = Supported, may require ext. components

C/T = Crystal and TCXO supported
C = Crystal, T = TCXO

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