Timing and high precision GNSS modules

P

	Timing modules					High precision GNSS, dead reckoning, and correction modules						
	RCB-F9T	ZED-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			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	2	3	3	2	2		4	4	4	4
Multi-band	•	•							•	•	•	•
Interfaces												
UART	1	2	1	1	1	1	1	2	2	2	2	2
USB		1	1	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	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	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	1	2	2	1	1		1	1	1	1
Time mark input		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			•									

T = TCXO V = VCTCXO

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Positioning chips and dead reckoning modules

P

	Dead reckoning GNSS modules			Standard precision GNSS chips							Dead reckoning GNSS chips	
	EVA-M8E	NEO-M8L	NEO-M8U	UBX-M9140-KA	UBX-M9140-KB	UBX-M8230-CT	UBX-M8030-CT	UBX-M8030-KA	UBX-M8030-KT	UBX-G8020-KT	UBX-M8030-KA-DR	UBX-M8030-KT-DR
Grade												
Automotive		•		*				*			*	
Professional	•	•	•		•				•	•		•
Standard						•	•					
Physical												
Image												
Size [mm]	7 x 7 x 1.1	12.2 x 16.0 x 2.4		5.00 x 5.00 x 0.59		2.99 x 3.21 x 0.36		5.00 x 5.00 x 0.59			5.00 x 5.00 x 0.59	
Package & pins	LGA 43	LCC 24		QFN40		WL-CSP47		QFN40			QFN40	
GNSS												
GPS / QZSS	•	•	•	•	•	•	•	•	•	•	•	•
GLONASS	•	•	•	•	•	•	•	•	•	•	•	•
Galileo	•	•	•	•	•	cm	•	•	•		•	•
BeiDou	•	•	•	•	•	•	•	•	•		•	•
Number of concurrent GNSS	3	3	3	4	4	3	3	3	3	1	3	3
Interfaces												
UART	1	1	1	2	2	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
DDC (I2C compliant)	1	1	1	1	1	1	1	1	1	1	1	1
Features												
Programmable (Flash)	E	•	•	S	S		S	S	S		•	•
Data logging	E	•	•	S	S	S	S	S	S	S	•	•
Data batching				•	•	•						
RTC crystal	o	•	•	S	S	S	S	S	S	S	S	S
Oscillator	T	C/T	C	T	T	T	C/T	C/T	C/T	C/T	C/T	C/T
Antenna supply & supervisor		S	S	S	S		S	S	S	S	S	S
Time pulse	1	1	1	2	2		2	2	2	2	2	2
Built-in sensor		•	•									
Power supply												
1.4 V – 3.6 V						•	•	•	•	•	•	•
1.65 V – 2.0 V				•	•							
2.25 V – 3.6 V				•	•							
2.7 V – 3.6 V	•	•	•									
3.0 V – 3.6 V		•										

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

S = Supported, may require ext. components
o = Optional, or requires external components
E = External Flash required

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

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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-M8C	MAX-M8Q	MAX-M8W	MAX-8C	MAX-8Q
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				
Package & pins	S-LGA 51			LGA 43			LCC 18				
GNSS											
GPS / QZSS	•	•	•	•	•	•	•	•	•	•	•
GLONASS	•	•	•	•	•	•	•	•	•	•	•
Galileo	cm	•	•	•	•		•	•	•		
BeiDou	•	•	•	•	•		•	•	•		
Number of concurrent GNSS	3	3	3	3	3	1	3	3	3	1	1
Interfaces											
UART	1	1	1	1	1	1	1	1	1	1	1
USB				1	1	1					
SPI	1	1	1	1	1	1					
DDC (I2C compliant)	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	C	T	T	C	T
Built-in antenna supply & supervisor									•		
Time pulse		1	1	1	1	1	1	1	1	1	1
Power supply											
1.71 V – 1.89 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

Standard precision GNSS modules

P

	Standard precision GNSS modules							Standard precision GNSS antenna modules		
	LEA-M8S	NEO-M9N	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]	17.0 x 22.4 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	LCC 28	LCC 24						LCC 31		LGA 20
GNSS										
GPS / QZSS	•	•	•	•	•	•	•	•	•	•
GLONASS	•	•	•	•	•	•	•	•	•	•
Galileo	•	•	•	•	•	•		•	•	•
BeiDou	•	•	•	•	•	•		•	•	
Number of concurrent GNSS	3	4	3	3	3	3	1	3	3	3
Interfaces										
UART	1	1	1	1	1	1	1	1	1	1
USB	1	1	1	1	1	1	1			
SPI		1	1	1	1	1	1	1	1	
DDC (I2C compliant)	1	1	1	1	1	1	1	1	1	1
Features										
Programmable (Flash)		•		•						
Data logging		•		•						
Additional SAW	•	•		•	•		•	•	•	•
Additional LNA		•		•	•		•	•	•	•
RTC crystal	•	•	•	•	•	•	•	♦	•	•
Oscillator	T	T	C	T	T	T	T	C	T	T
Built-in antenna								•	•	•
Built-in antenna supply & supervisor	•									
Time pulse	1	1	1	1	1	1	1	1	1	1
Power supply										
1.65 V – 3.6 V			•					•		
2.7 V – 3.6 V	•	•		•	•	•	•		•	•

* = Operating temperature -40 °C to +105 °C

♦ = Yes, but with higher backup current

C = Crystal / T = TCXO

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