Timing and high precision GNSS modules



Total			Tim	ing mo	dules			Hiç	High precision GNSS, dead reckoning, and correction modules							
Automotive Pryefressional Standard Physical Image		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		
Size [mm]	Automotive Professional Standard		·	•	•	·	·	•					•	•		
September Sept	Image	Pass S			EA-M8					1]					
Package & pins B pins LGA 54 LCC 28 B LCC 24 B LCC 24 B CGA 54	Size [mm]	31.7 x 67.2	17 x 22	17.	0 x 22.4 x	2.4		12.2 x 16	6.0 x 2.4			17 x 2	2 x 2.4			
GRS GPS / QZSS	Package & pins	8 pins			LCC 28			LCC	24			LGA	A 54			
GLONASS Galileo Galile	<u> </u>															
Galileo	GPS/QZSS	•	•	•		•	•		•				•			
BeiDou Number of concurrent (SASS)	GLONASS															
BeiDou Number of concurrent (SMSS)	Galileo	•	•			•	•									
Number of concurrent GNSS																
NART	Number of concurrent	4			2	3	3	2	2		4	4	4	4		
UART 1 2 1	Multi-band	*	*	**									•	•		
USB	Interfaces															
SPI 1	UART	1	2	1	1	1	1	1	1	2	2	2	2	2		
DDC (I2C compliant)	USB		1	1	1	1	1	1	1	1	1	1	1	1		
Features Programmable (flash) .<	SPI		1	1	1	1	1	1	1	1	1	1	1	1		
Programmable (flash) Data logging Carrier phase output Additional SAW Additional LNA RTC crystal Oscillator T T T T T T T T T T T T T T T T T T	DDC (I2C compliant)		1	1	1	1	1	1	1	1	1	1	1	1		
Data logging Carrier phase output Additional SAW Additional LNA RTC crystal Oscillator T T T T T T T T T T T T T T T T T T T	Features															
Carrier phase output Additional SAW Additional LNA RTC crystal Oscillator T T T T T T T T T T T T T T T T T T	Programmable (flash)	•	•	•	•	•	•	•	•	•	•	•	•	•		
Additional SAW Additional LNA RTC crystal Oscillator 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 1 1 Frequency output Power supply 2.7 V – 3.6 V Additional SAW	Data logging	•	•	•		•	•	•	•							
Additional LNA RTC crystal	Carrier phase output	•	•	•		•	•	•	•		•			•		
RTC crystal	Additional SAW															
RTC crystal	Additional LNA						•		•							
Oscillator T T T V T																
RTK rover RTK base station Moving base Survey-in and fixed mode Built-in sensor Time pulse 2 2 2 1 2 1 1 1 1 1 1 1 1 Time mark input Frequency output Power supply 2.7 V - 3.6 V	•	Т		Т	V	т	т	т .	т		Т	т	т	т		
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 1 1 1 Time mark input Frequency output Power supply 2.7 V - 3.6 V • • • • • • • • • • • • • • • • • •								-					•	-		
Survey-in and fixed mode Built-in sensor Time pulse 2 2 2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1																
Built-in sensor Time pulse 2 2 2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1								•								
Time pulse 2 2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1		•	•	•	•	•	•		•		•					
Time mark input 2 2 2 2 2 1 1 1 1 1 1 1 1 Frequency output 2.7 V - 3.6 V • • • • • • • • • • • • • • •													•			
Frequency output • Image: Control of the control of th		2														
Power supply 2.7 V - 3.6 V • <td></td> <td></td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>1</td> <td>1</td> <td></td> <td>1</td> <td>1</td> <td>1</td> <td>1</td>			2	2	2	2	2	1	1		1	1	1	1		
2.7 V – 3.6 V · · · · · · · · · · · · · ·					•											
		•	•	•		•	٠	•	•	•	•	•	•	•		

 $[\]star$ = Versions available for L1/L2/E5b or L1/L5/E5a band support

T = TCXO

V = VCTCXO



^{** =} L1/L2/E5b and L1/L5/E5a band support

GNSS chips



	Dead red precisi	koning a		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	-			William with profities records and profities later			1000	機能"			
Size [mm]	į	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	0 x 5.0 x 0.5	59
Package & pins		QFN40		QFN28	QFI	N40	WL-C	SP47		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	Т	C/T	Т	Т	Т	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

S = Supported, may require ext. components



UBX-13004717-R24

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

Standard precision GNSS modules



	Stand	ard pre	cision	GNSS	SiP m	nodules	Standard precision GNSS modules							
	ZOE-M8B	ZOE-M8G	ZOE-M8Q	EVA-M8M	EVA-M8Q	EVA-8M	MAX-M10S	MAX-M8C	MAX-M8Q	MAX-M8W	MAX-8C	MAX-8Q	LEA-M8S	
Grade						,								
Automotive														
Professional	٠	•	•	•	•	•	•	•	•	•	٠	•		
Standard Physical														
Trysical														
Image			I			**************************************	thlox MAX-M10S		MAX-M		MAX-8		Oblox LEA-M8S	
Size [mm]	4.5	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	9	S-LGA 51			LGA 43	3			LCC	18			LCC 28	
GNSS														
GPS/QZSS	•	•	•	•	•	•	•	•	•	•	•	•	•	
GLONASS										•				
Galileo	cm		•	•	•		•	•	•	•			•	
BeiDou														
Number of concurrent GNSS	3	3	3	3	3	1	4	3	3	3	1	1	3	
Interfaces		1		I		I	l	I						
UART	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	
Features														
Programmable (flash)		E	Е	E	E									
Data logging	E	E	E	E	E	E								
Data batching	•						•							
Additional SAW	•	•	•				•						•	
Additional LNA	•	•	•				•							
RTC crystal	o	o	0	o	o	o	•	•	•	•	•	•	•	
Oscillator	Т	Т	Т	С	Т	С	Т	С	Т	Т	С	Т	Т	
Built-in antenna supply and supervisor										٠			•	
Time pulse		1	1	1	1	1	1	1	1	1	1	1	1	
Power supply														
1.71 V – 1.89 V	•	•												
1.65 V – 3.6 V						•		•			٠			
2.7 V – 3.6 V			•		•		•		•	•		•	•	

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

T = TCXO



Standard precision and dead reckoning GNSS modules



		Dead reckoning GNSS modules			andar	d prec	Standard precision GNSS antenna modules						
	EVA-M8E	NEO-M8L	NEO-M8U	NEO-M9N	NEO-M8J	NEO-M8M	NEO-M8N	NEO-M8Q	NEO-M8Q-01A	NEO-8Q	CAM-M8C	САМ-М8Q	SAM-M8Q
Grade													
Automotive									*				
Professional	•		•			•	•	•		•		•	•
Standard													
Physical										,			
lmaga	Nam.	€ blc	×	@ blox			blox			€ blox	€ blox		thlox SAM-M8Q

Image















Size [mm]	7 x 7 x 1.1	12.2 x 10	6.0 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	3	3	4	3	3	3	3	3	1	3	3	3
Interfaces					ı								
UART	1	1	1	1	1	1	1	1	1	1	1	1	1
USB	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	1
Features													
Programmable (flash)	E	•	•	•	•		•						
Data logging	E	•	•	•			•						
Additional SAW				•	•		•	•		•		•	•
Additional LNA				•			•	•		•		•	•
RTC crystal	0	•	•	•	•	•	•	•	•	•	•	•	•
Oscillator	Т	C/T	С	Т	С	С	Т	Т	Т	Т	С	Т	Т
Built-in antenna												•	•
Built-in antenna supply and supervisor		s	S										
Time pulse	1	1	1	1	1	1	1	1	1	1	1	1	1
Built-in sensor		•	•										
Power supply										1			
1.65 V – 3.6 V						•							
2.7 V – 3.6 V				•	•			•		•		•	

o = Optional, or requires external components

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



^{♦ =} Yes, but with higher backup current

E = External flash required

^{* =} Operating temperature -40 °C to +105 °C

S = Supported, may require ext. components