






























# UNICORE NEBULASIV SERIES PRODUCTS

	 <b>UM980</b> GPS/BDS/GLONASS/Galileo /QZSS All-Constellation Multi-Frequency High-Precision RTK Positioning Module	 <b>UM980C</b> GPS/BDS/GLONASS/Galileo /QZSS All-Constellation Multi-Frequency High-Precision RTK Positioning Module (L-Band & CLAS Supported)	 <b>UM982</b> GPS/BDS/GLONASS/Galileo /QZSS All-Constellation Multi-Frequency High-Precision Positioning and Heading Module	 <b>UM982C</b> GPS/BDS/GLONASS/Galileo /QZSS All-Constellation Multi-Frequency High-Precision Positioning & Heading Module (L-Band & CLAS Supported)	 <b>UB9A0</b> All-Constellation GNSS High-Precision Board	 <b>UM981</b> GPS/BDS/GLONASS/Galileo /QZSS All-Constellation Multi-Frequency RTK/INS Integrated Positioning Module	 <b>UM981C</b> GPS/BDS/GLONASS/Galileo /QZSS All-Constellation Multi-Frequency RTK/INS Integrated Positioning Module (L-Band & CLAS Supported)	 <b>UM981S</b> GPS/BDS/GLONASS/Galileo /QZSS All-Constellation Multi-Frequency RTK/INS Integrated Positioning Module	 <b>UM960</b> GPS/BDS/GLONASS/Galileo /QZSS All-Constellation Multi-Frequency High-Precision RTK Positioning Module	 <b>UM960E</b> GPS/BDS/GLONASS/Galileo /QZSS All-Constellation Multi-Frequency High-Precision RTK Positioning Module	 <b>UT986</b> GNSS All-Constellation Multi-Frequency High Accuracy Timing Module	
<b>Quality Certificates</b>	RoHS, REACH, CE, FCC, IC, RED		RoHS, REACH, CE, FCC, IC, RED		RoHS, REACH, CE, FCC, IC, RED	RoHS, REACH, CE, FCC, IC, RED			RoHS, REACH, CE, FCC, IC, RED, POPS, TSCA	RoHS, REACH, CE, FCC, IC, RED, POPS, TSCA	RoHS, REACH, RED	
<b>Application Areas</b>	Surveying and Mapping; Precision Agriculture		UAV, Precision Agriculture, Autonomous Machine		CORS, GBAS, High-Precision Surveying and Mapping	Precision Agriculture			Surveying and Mapping	Robotic Lawn Mower, GIS Handheld, Drone Light Show, Robots	Robotic Lawn Mower	Telecom Base Station Timing, Electrical Power Grid Timing, Network Time Synchronization
<b>Dimensions</b>	17.0 × 22.0 × 2.6 mm		16.0 × 21.0 × 2.6 mm		60.0 × 100.0 × 11.4 mm	17.0 × 22.0 × 2.6 mm			12.2 × 16.0 × 2.6 mm	12.2 × 16.0 × 2.6 mm	17.0 × 22.4 × 2.4 mm	
<b>Packaging</b>	54 pin LGA		48pin LGA		40 pin	54 pin LGA			24 pin LGA	24 pin LGA	28 pin LCC	
<b>Weight</b>	1.88 g ± 0.03 g		1.82 g ± 0.03 g		46.5 g ± 2.5g	1.91g ± 0.03g			1.11 g ± 0.03 g	1.08 g ± 0.03 g	1.9 g	
<b>Single Point (RMS)</b>	Hor: 1.5 m Ver: 2.5 m		Hor: 1.5 m Ver: 2.5 m		Hor: 1.5 m Ver: 2.5 m	Hor: 1.5 m Ver: 2.5 m			Hor: 1.5 m Ver: 2.5 m	<b>Hor: 1.5 m Ver: 2.5 m</b>	Hor: 1.5 m Ver: 2.5 m	
<b>DGPS (RMS)</b>	Hor: 0.4 m Ver: 0.8 m		Hor: 0.4 m Ver: 0.8 m		Hor: 0.4 m Ver: 0.8 m	Hor: 0.4 m Ver: 0.8 m			Hor: 0.4 m Ver: 0.8 m	Hor: 0.4 m Ver: 0.8 m	—	
<b>RTK (RMS)</b>	Hor: 0.8 cm+1 ppm Ver: 1.5 cm+1 ppm		Hor: 0.8 cm+1 ppm Ver: 1.5 cm+1 ppm		Hor: 0.8 cm+1 ppm Ver: 1.5 cm+1 ppm	Hor: 0.8 cm+1 ppm Ver: 1.5 cm+1 ppm			Hor: 0.8 cm+1 ppm Ver: 1.5 cm+1 ppm	Hor: 0.8 cm+1 ppm Ver: 1.5 cm+1 ppm	—	
<b>Heading (RMS)</b>	—		0.1° /1 m baseline		—	—			—	—	—	
<b>Frequency</b>	BDS B1I, B3I, B1C, B2a, B2b, B3I GPS L1C/A, L1C, L2C, L2P(Y), L5 GLONASS G1, G2, G3 (UM980) GLONASS G1, G2 (UM980C) Galileo E1, E5a, E5b, E6 QZSS L1C/A, L1C/B, L1C, L2C, L5, L6 NAVIC L5 SBAS L1C/A L-Band (UM980C)		BDS B1I, B3I, B1C*, B2b* GPS L1C/A, L2C, L2P(Y), L5 GLONASS G1, G2 Galileo E1, E5a, E5b, E6* QZSS L1C/A, L1C/B, L2C, L5, L6* SBAS L1C/A L-Band (UM982C)		BDS B1I, B3I, B1C, B2a, B2b GPS L1C/A, L1C, L2C, L2P(Y), L5 GLONASS G1, G2, G3 Galileo E1, E5a, E5b, E6 QZSS L1C/A, L1C, L2C, L5, L6 Navic L5 SBAS L1 C/A L-Band*	BDS B1I, B3I, B1C, B2a, B2b GPS L1C/A, L1C, L2C, L2P(Y), L5 GLONASS G1, G2, G3 Galileo E1, E5a, E5b, E6 QZSS L1C/A, L1C, L2C, L5, L6 Navic L5 SBAS L1C/A L-Band (UM981C)			BDS B1I, B3I, B1C, B2a, B2b GPS L1C/A, L2C, L2P(Y), L5 GLONASS G1, G2 Galileo E1, E5a, E5b, E6 QZSS L1C/A, L2C, L5 SBAS L1C/A	BDS B1I, B3I, B1C, B2a, B2b GPS L1C/A, L2C, L2P(Y), L5 GLONASS G1, G2 Galileo E1, E5a, E5b, E6 QZSS L1C/A, L2C, L5	BDS B1I, B1C, B2a GPS L1C/A, L2C, L5 GLONASS G1 Galileo E1, E5a, E5b QZSS L1C/A, L2C, L5	
<b>IMU</b>	—		—		—	●			—	—	—	
<b>Dual Antenna</b>	—		●		—	—			—	—	—	
<b>RTK Initialization Time (s)</b>	<5		<5		<5	<5			<5	<5	—	
<b>Cold Start (s)</b>	<12		<30		<12	<12			<30	<35	<30	
<b>Data Update Rate (Hz)</b>	50		20		50	100Hz (IMU Raw Data) 50 Hz (RTK)			20	20	1	
<b>Output Latency (ms)</b>	<25		<20		<25	<10			<20	<20	<20	
<b>Interface</b>	<b>Serial Port</b>	3 x LVTTTL		3 x LVTTTL	1 x RS-232 2 x LVTTTL	3 x LVTTTL			3 x LVTTTL	3 x LVTTTL	2 x LVTTTL	
	<b>Ethernet Port (10/20 M)</b>	—		—	1	—			—	—	—	
	<b>1PPS</b>	1		1	1	1			1	1	1	
	<b>External Clock</b>	—		—	1	—			—	—	1	
<b>Page</b>	10	11	08	09	18	12	13	14	15	16	17	

● Support; -N/A; \* Optional

# UNICORE UFireBIRD SERIES PRODUCTS

Products		Applications		Grade		Dimensions	GNSS					Single frequency	Dual frequency	Ports				Functions					Page				
				Industrial grade	Automotive grade		GPS	BDS	GLONASS	Galileo	NavIC			QZSS	SBAS	UART1	UART2	SPI	I <sup>2</sup> C	Built-in Flash	Data Update Rate	DR		AGNSS	Timing	RTK	
<b>UFirebird IV Series</b>																											
Chip	 UFirebird IV UC7510A	UAV, Vehicle Navigation, Industrial Applications		●	4.0 × 4.0 × 0.75 mm	●	●		●	●	●	●	●		●		○	●	●	1 Hz / 5 Hz / 10 Hz		●				21	
	 UFirebird IV UC7510I		●	4.0 × 4.0 × 0.75 mm	●	●		●	●	●	●	●	●	●		●		○	●	●	1 Hz / 5 Hz / 10 Hz		●				21
Module	 UM760	Industrial Applications	●		12.2 × 16.0 × 2.4 mm	●	●		●	●	●	●	●		●			●	●	1 Hz / 5 Hz / 10 Hz		●				23	
	 UM760A	Vehicle Navigation, T-BOX, Vehicle Monitoring, Streaming Rearview Mirror		●	12.2 × 16.0 × 2.4 mm	●	●		●	●	●	●	●		●			●	●	1 Hz / 5 Hz / 10 Hz		●				24	
	 UM761	Industrial Applications	●		12.2 × 16.0 × 2.4 mm	●	●		●	●	●	○	●		●			●	●	1 Hz / 5 Hz / 10 Hz		●	●			25	
	 UM761A	Vehicle Navigation, T-BOX, Vehicle Monitoring, Streaming Rearview Mirror		●	12.2 × 16.0 × 2.4 mm	●	●		●	●	●	○	●		●			●	●	1 Hz / 5 Hz / 10 Hz		●	●			26	
<b>UFirebird II Series</b>																											
Chip	 UFirebird II UC6580A	GIS, UAV, Automated Delivery Vehicle, Sharing Bike/Scooter, Intelligent Driving		●	5.0 × 5.0 × 0.85 mm	●	●		●	●	○	●	●		●	●	●	○	●	●	1 Hz / 5 Hz / 10 Hz		●				27
	 UFirebird II UC6580I		●	5.0 × 5.0 × 0.85 mm	●	●		●	●	○	●	●		●	●	●	●	○	●	●	1 Hz / 5 Hz / 10 Hz		●				27
Module	 UM680	Industrial Applications	●		17.0 × 22.0 × 2.6 mm	●	●		●	●	○	●	●		●	●	●	○	○	●	1 Hz / 5 Hz / 10 Hz		●		●	29	
	 UM680A	Intelligent Driving, P-Box, T-Box		●	17.0 × 22.0 × 2.6 mm	●	●		●	●	○	●	●		●	●	●	○	○	●	1 Hz / 5 Hz / 10 Hz		●		●	30	
	 UM681	Industrial Applications	●		17.0 × 22.0 × 2.6 mm	●	●		●	●	○	●	●		●	●	●	○	○	●	1 Hz / 5 Hz / 10 Hz		●	●		●	31
	 UM681A	Intelligent Driving, V2X, T-Box		●	17.0 × 22.0 × 2.6 mm	●	●		●	●	○	●	●		●	●	●	○	○	●	1 Hz / 5 Hz / 10 Hz		●	●		●	32
	 UM670A	Intelligent Driving, P-Box, T-Box		●	17.0 × 22.0 × 2.6 mm	●	●		●	●	○	●	●		●	●	●	○	○	●	1 Hz / 5 Hz / 10 Hz		●				33
	 UM671A	Intelligent Driving, P-Box, T-Box		●	17.0 × 22.0 × 2.6 mm	●	●		●	●	○	●	●		●	●	●	○	○	●	1 Hz / 5 Hz / 10 Hz		●	●			34
	 UM620	Industrial Applications	●		16.0 × 12.2 × 2.4 mm	●	●		●	●	○	●	●		●	●	●	○	○	●	1 Hz / 5 Hz / 10 Hz		●				35
	 UM620A	Vehicle Navigation, T-BOX, Intelligent Cockpit		●	16.0 × 12.2 × 2.4 mm	●	●		●	●	○	●	●		●	●	●	○	○	●	1 Hz / 5 Hz / 10 Hz		●				36
	 UM621	Industrial Applications	●		16.0 × 12.2 × 2.4 mm	●	●		●	●	○	●	●		●	●	●	○	○	●	1 Hz / 5 Hz / 10 Hz		●	●			37
	 UM621A	Vehicle Navigation, T-BOX, Intelligent Cockpit		●	16.0 × 12.2 × 2.4 mm	●	●		●	●	○	●	●		●	●	●	○	○	●	1 Hz / 5 Hz / 10 Hz		●	●			38

● : support ○ : support after firmware upgrade