

## SPECIFICATIONS - M25M Series

Edition	Platinum Edition		Silver Edition			Research Edition			
Configuration	Surface	Embedded	Surface	Node	Embedded	Surface			
Model number	WNC-M25MPS3	WNC-M25MPE3	WNC-M25MSS3	WNC-M25MSN3	WNC-M25MSE3	WNC-M25MRS3			
<b>Data rate</b>	Up to 15 kbps (depending on channel conditions and reliability requirements)						Up to 300 bps (depending on channel conditions and reliability requirements)		
<b>Operating range</b>	3-5 km (nominal, depending on channel conditions)						1 km (nominal, depending on channel conditions)		
<b>Ranging precision</b>	0.1 m								
<b>Doppler resilience</b>	$\pm 4$ knots or better								
<b>Modulation (software defined)</b>	PSK-OFDM, FH-BFSK						FH-BFSK		
<b>FEC (Forward Error Correction)</b>	LDPC, up to 1/6 rate code; JANUS 1/2 rate convolution code								
<b>Software framework</b>	UnetStack3 ( <a href="http://www.unetstack.net">www.unetstack.net</a> )								
<b>Software interface</b>	UnetStack3 (Java, Groovy, Python, C, Matlab, Javascript, Julia), interactive web UI, JSON/TCP								
<b>Hardware interface</b>	Ethernet, power, RS232		Ethernet, power						
<b>Transducer beam pattern</b>	Omnidirectional								
<b>Carrier frequency</b>	24 kHz								
<b>Bandwidth</b>	12 kHz (20 - 32 kHz)								
<b>Source level</b>	185 dB re 1 $\mu$ Pa @ 1 m rms (nominal)						175 dB re 1 $\mu$ Pa @ 1 m rms (nominal)		
<b>Power consumption</b>	< 4 W (receive mode, nominal) < 60 W (transmit mode, avg.) < 80 W (transmit mode, max.) < 1.5 W (sleep mode)		< 4 W (receive mode, nominal) < 60 W (transmit mode, avg.) < 80 W (transmit mode, max.)		< 4 W (receive mode, nominal) < 25 W (transmit mode, avg.)				
<b>Power source</b>	External power: 22 – 28 V DC (24 V DC recommended)			1.5 V D size battery X 16*	External power: 22 – 28VDC (24VDC recommended)				
<b>Operating depth</b>	300 m (Aluminium hull)	2000 m (Transducer depth rating)	100 m (Aluminium hull)		2000 m (Transducer depth rating)	100 m (Acrylic hull)			
<b>Dimensions</b>	$\varnothing$ 127 X 400 mm	90 X 90 X 180 mm	$\varnothing$ 127 X 280 mm	$\varnothing$ 127 X 700 mm	$\varnothing$ 104 X 147 mm	$\varnothing$ 135 X 400 mm			
<b>Weight (in air / water)</b>	6.0 / 2.5 kg	1.0 / n/a kg	4.0 / 1.0 kg	6.0 / 0.5 kg (without batteries)	1.0 / n/a kg	3.0 / TBC kg			
<b>JANUS compatibility</b>	Yes, subject to operating frequency band								
<b>Wake up module</b>	Included (acoustic, Ethernet, RS232)						Included (Ethernet)		
<b>Onboard storage</b>	Not available						32 GB		
<b>Arbitrary waveform transmission &amp; reception</b>	Included						32 GB		
<b>Qualification testing</b>	MIL-STD-810G, MIL-STD-810E, MIL-STD-461E						Not available		
<b>Optional upgrades</b>									
<b>Low drift clock</b>	Not available		OCXO (25 ppb)		Not available				
<b>Hull</b>	Stainless steel, delrin	n/a	Stainless steel, delrin		n/a	Aluminium			
<b>Depth rating</b>	up to 2000 m						Not available		
<b>Additional storage</b>	Not available						Not available		
<b>Additional coprocessor</b>	Not available						Not available		
<b>Additional interface support</b>	Not available						Not available		
<b>Optional software upgrades</b>	Unity** (Distributed spatial diversity framework for improved performance)						Not available		
<b>Accessories &amp; Support</b>									
<b>Data &amp; power cable</b>	25 m underwater cable	1 m Ethernet, power & transducer	25 m underwater cable	5 m underwater cable	1 m Ethernet, power & transducer	25 m underwater cable			
<b>Mounting clamps</b>	Optional	n/a	Optional	2X recommended	n/a	Optional			
<b>Customer support</b>	Phone/Email/Chat						Online forums		

\* Batteries not included

\*\* Patent pending