



SPOTLIGHT ON NEW
TECHNOLOGY 2015

High Performance Pinless Subsea Connector

WiSub's patented data transfer technology attains never-before achieved speeds in pinless connection, starting with a 100Mbps transparent Ethernet & serial interface. The convergence of this disruptive solution with proprietary inductive coupling has resulted in a flexible connection solution delivering unlimited wet-mate cycles and loose mating tolerances, enabling both savings and the development of new opportunities for underwater equipment manufacturers and operators.



Alignment freedom
Gap tolerance
360° continuous rotate
Infinite mating cycles



Data + Power
From 100 Mbps
Ethernet + serial
42kW under development



Standardized interface
No pin-count
Latching & packaging options
Fibre optic + copper

DATA TRANSFER (via microwave link)

Power requirement	1W minimum, 1,5W peak
Input Voltage	24 vdc
Data Rate	100 Mbps ¹
Data Type	Ethernet and Serial (RS232, RS422, RS485) ¹
Seawater Gap	0 to 30 mm ^f

POWER TRANSFER (via inductive link)

Power input	24 VDC, Reverse polarity protected
Power output ^Y	24 VDC +0/-5%, 48W
Distance	0 to 10 mm

MECHANICAL PROPERTIES

	Maelstrom Transmitter (Tx)	Maelstrom Receiver (Rx)
Weight in air	1.3 kg	1.3 kg
Weight in seawater	1.1 kg	1.1 kg
Housing	Aluminum ⁿ	Aluminum ⁿ
Encapsulation	Epoxy and Polyurethane ^k	Epoxy and Polyurethane ^k

¹Options include video or customer-specified data format

¹Bandwith is shared between data types; maximum serial baudrate 230 kbps

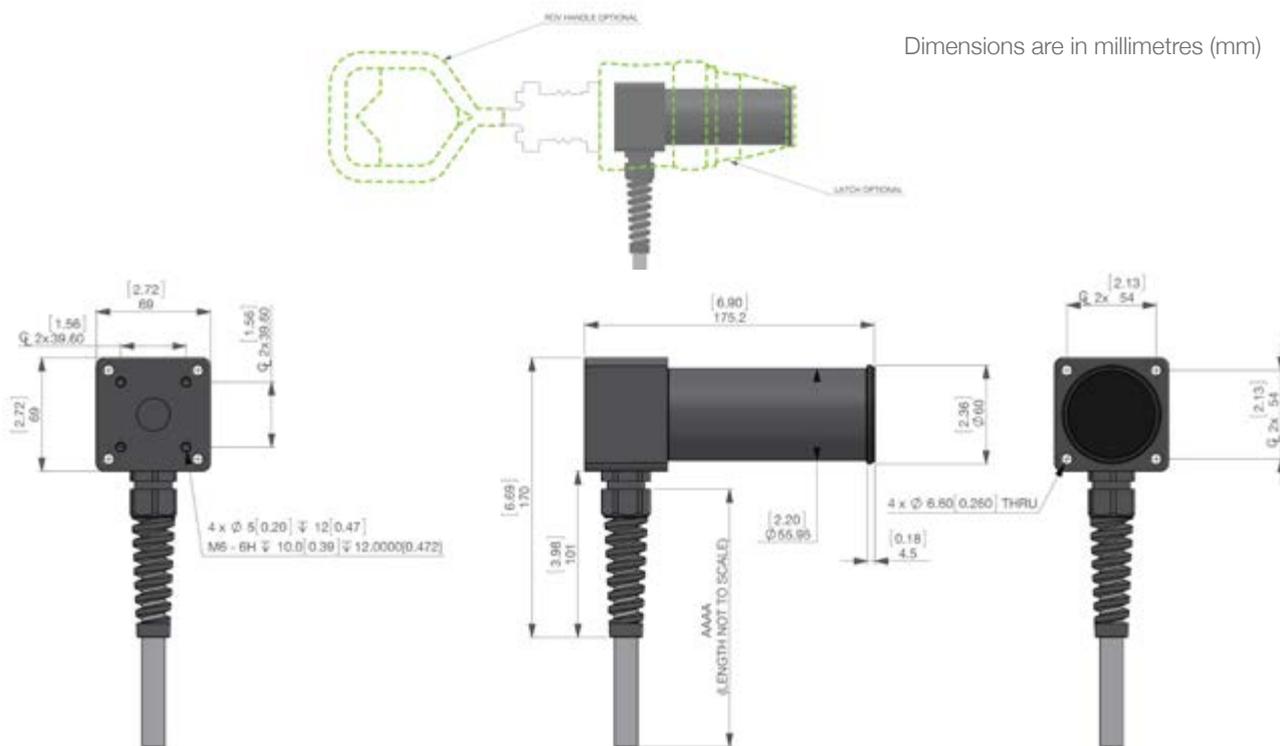
^fGreater distance is possible with decreased data throughput, up to 60 mm at 1 Mbps

^YPower transfer solution is customized to specific applications. WiSub Maelstrom™ 48 Watt pinless wet-mate connector pictured on front page.

ⁿCustomer-specified materials for housing are possible including 316SS, beryllium copper and titanium

^kAlternative encapsulations available e.g. atmospheric or PBOF (pressure-balanced, oil-filled)

Dimensions are in millimetres (mm)



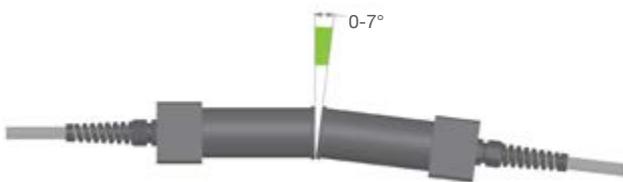
Flexible Operational Tolerances

WiSub pinless connectors overcome sub-millimeter tolerances to offer centimeter tolerances on your subsea connection applications, enabling subsea solutions never before possible with pinned connectors.

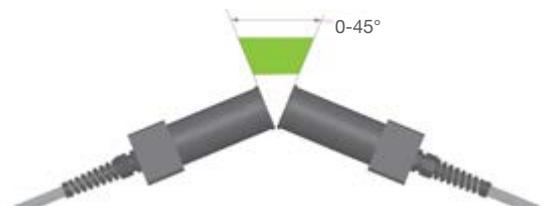
Rotational Alignment Tolerance



Angular Misalignment Tolerance POWER



Angular Misalignment Tolerance DATA



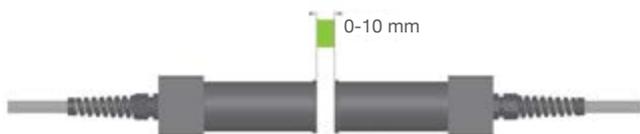
Cross Axis Tolerance POWER



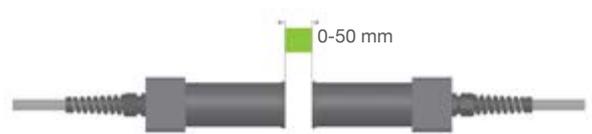
Cross Axis Tolerance DATA



Gap Tolerance POWER



Gap Tolerance DATA



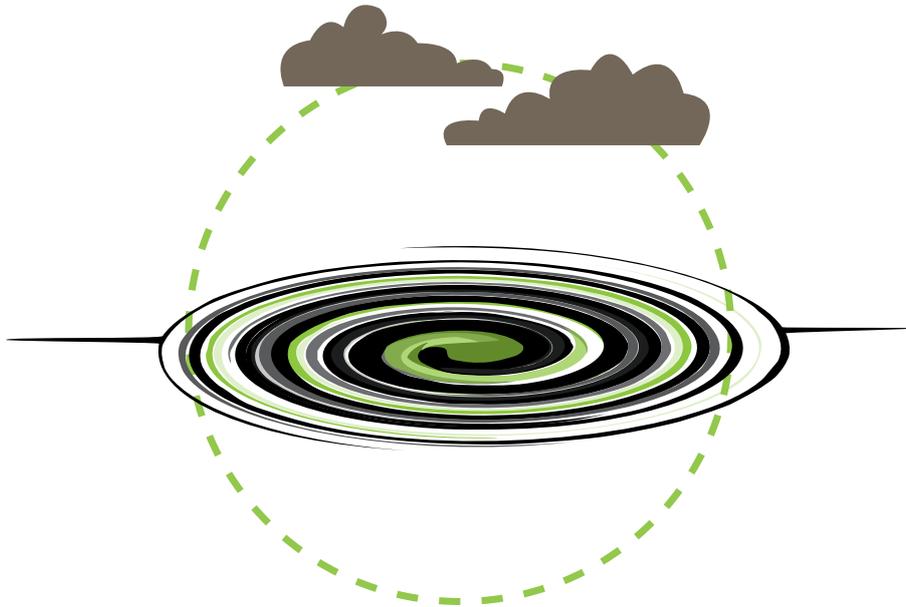
Comparative Advantages

WiSub pinless connectors transfer data through seawater at much higher data rates than many other existing non-contact subsea communications methods, being based on WiSub-patented high-speed, high-frequency microwave electronics vs. low-frequency RF, inductive or acoustic technologies. Advantages over legacy “plug-in” wet-mate connectors include galvanic separation, alignment freedom, immunity against seal contamination and unlimited mating cycles.

WiSub pinless connectors are unaffected by acoustic disturbance and turbidity, or by marine growth that might affect optical systems. Driving electronics and transducers are optimized for through-water transmissions. Low-frequency inductive power transfer and high-frequency data transfer solutions peacefully co-existing without interference.

Strength through Collaboration

WiSub has developed solutions in partnership with industry, academia and government. If our products do not match your current needs, please contact us with your requirements and perhaps learn what’s coming down the line. Development of next-generation product is ongoing.



MAELSTROM™

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As the secret of the runes unlocked insight and ability in Norse mythology, WiSub is unlocking the secret of pinless underwater connection by delivering innovative applications together with our customers.

WiSub's pinless subsea connection systems are delivered through different products which have been named after powerful weather phenomenon mentioned in the old Norse sagas.

Maelstrom means "mill stream" from the mythical whirlpool created by the millstone that salts the ocean. The name Maelstrom also belongs to WiSub's first award-winning subsea pinless connector, a product based on disruptive technology that is changing the way we work underwater.



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