Claims

1. A thruster for a marine vessel, the thruster comprising a system for contactless power transmission, the system comprising:
   a first body comprising a first inductor to provide a magnetic field;
   a second body comprising a second inductor to generate an electrical current from the magnetic field;
   the bodies being configured to be relatively rotatable;
   characterised in that the first inductor and the second inductor are configured to generate an electrical current from the magnetic field at all relative rotational positions,
   wherein the first inductor is tuned to resonate within a predetermined frequency band and the second inductor is tuned to resonate within a predetermined frequency band, the frequency band of the second inductor at least partially overlapping with the frequency band of the first inductor.

2. A thruster as claimed in claim 1, the first body being arranged within an upper housing.

3. A thruster as claimed in claim 1, the second body being arranged within a lower housing.

4. A thruster as claimed in any of claims 1 to 3, the first inductor and the second inductor configured to overlap by between about 25% to 100% at all relative rotational positions.

5. A thruster as claimed in any of claim 1 to 3, the first inductor and the second inductor configured to overlap by between about 75% to 100% at all relative rotational positions.

6. A thruster as claimed in any preceding claim, the first body comprising two or more first inductors.

7. A thruster as claimed in any preceding claim, the second body comprising two or more second inductors.

8. A thruster as claimed in any preceding claim, the or each first inductor comprising an induction or resonant transmitter coil.

9. A thruster as claimed in any preceding claim, the or each second inductor comprising an induction or resonant receiver coil.

10. A thruster as claimed in any preceding claim, the or each first and second coils and being configured as annular coils.

11. A thruster as claimed in any preceding claim, each body comprising a conductive material.

12. A thruster 10 as claimed in any preceding claim, each body comprising a facing surface comprising one or more of a flat or textured surface.

13. A system as claimed in any preceding claim, one of first and second bodies being concentrically arranged relative to the other of the first and second bodies.

14. A thruster as claimed in any preceding claim, each body comprising a ring.

15. A thruster as claimed in any preceding claim, each body being of equal diameter.

16. A thruster as claimed in any preceding claim, the bodies being spaced between about 1mm to 100mm apart.

17. A thruster as claimed in any preceding claim, the bodies being spaced between about 10mm to 20mm apart.

18. A thruster as claimed in any preceding claim, wherein the thruster is an azimuth thruster.

19. A thruster as claimed in any preceding claim, the system being additionally configured for data transfer.

20. A thruster for a marine vessel, the thruster comprising a system for contactless power transmission, the system comprising:

a first body comprising a plurality of first inductors to provide a magnetic field, wherein each of the first inductors is configured as a discrete module from other similar modules;

a second body comprising a plurality of second inductors to generate an electrical current from the magnetic field, wherein each of the second inductors is configured as a discrete module from other similar modules;

the bodies being configured to be relatively rotatable;

characterised in that the first inductor and the second inductor are configured to generate an electrical current from the magnetic field at all relative rotational positions, wherein the or each of the first inductors are tuned to resonate within a predetermined frequency band and the or each of the second inductors are tuned to resonate within a predetermined frequency band, the frequency band of the or each of the second inductors at least partially overlapping with the frequency band of the or each of the first inductors.

21. A thruster as claimed in claim 20, wherein the plurality of first inductors are circumferentially positioned with the first body at one or more respective radial locations, and wherein the plurality of second inductors are circumferentially positioned with the second body at matching circumferential and/or radial positions relative to the first inductors.