



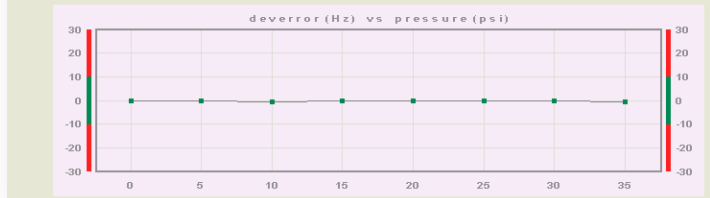
SEAMAP
A MIND Technology Business

SEAMAP GUNLINK™ TRANSDUCERS

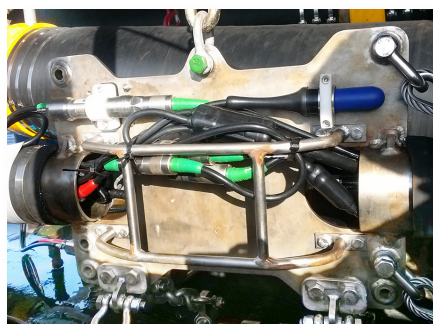
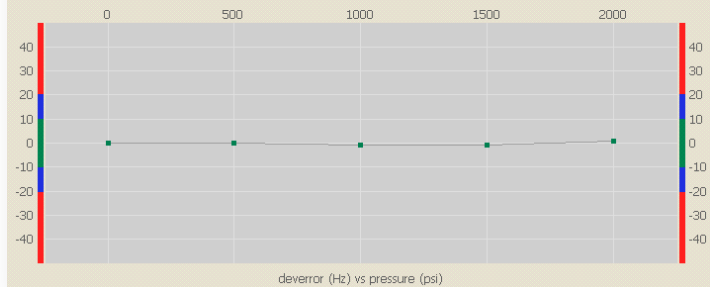
GUN DEPTH AND LINE PRESSURE TRANSDUCERS

The Seamap range of depth and pressure transducers offer improved linearity, accuracy and stability over existing conventional transducer designs at an affordable price. Seamap's transducers produce a greater depth of output amplitude to ensure a more reliable and robust signal which is more tolerant of poor transmission lines.

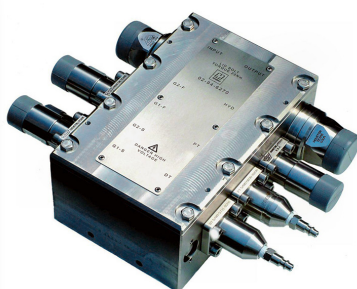
| psi | ideal(Hz) | readout(Hz) | deverr(Hz) | abserr(Hz) | comments |
|-----|-----------|-------------|------------|------------|----------|
| 0 | 6000.0 | 6000 | 0.0 | 0.0 | pass |
| 5 | 6342.4 | 6342 | -0.4 | -0.4 | pass |
| 10 | 6684.7 | 6684 | -0.7 | -0.7 | pass |
| 15 | 7027.0 | 7027 | -0.0 | -0.0 | pass |
| 20 | 7369.4 | 7369 | -0.4 | -0.4 | pass |
| 25 | 7711.8 | 7712 | 0.3 | 0.3 | pass |
| 30 | 8054.1 | 8054 | -0.1 | -0.1 | pass |
| 35 | 8396.5 | 8396 | -0.5 | -0.5 | pass |



| psi | ideal(Hz) | readout(Hz) | deverr(Hz) | abserr(Hz) | comments |
|------|-----------|-------------|------------|------------|----------|
| 0 | 6000.00 | 6000 | 0.00 | 0.00 | pass |
| 500 | 6500.00 | 6500 | 0.00 | 0.00 | pass |
| 1000 | 7000.00 | 6999 | -1.00 | -1.00 | pass |
| 1500 | 7500.00 | 7499 | -1.00 | -1.00 | pass |
| 2000 | 8000.00 | 8001 | 1.00 | 1.00 | pass |



Seamap Transducer mounted
on a Gun Array



A significant improvement is achieved by implementing a curve-fitting algorithm utilizing a thick ceramic piezo-resistive sensor film.

The Seamap transducer design incorporates the latest in advanced electronic design techniques with embedded dual digital processors and improved signal conditioning circuitry, providing the capability to apply advanced error correction techniques which improve overall accuracy of depth and pressure readings over the full operating range.

Transducers are configured to have a standard modulated frequency output making them fully compatible with existing industry standard frequency modulated depth and pressure monitoring systems and sensors.

The Seamap transducers are designed specifically to work reliably in the harsh and demanding marine environment. They are capable of withstanding excessive physical conditions such as extreme shallow water environments. Special care is exercised in the selection of high quality components and their packaging is designed to protect them against component failure, corrosion and physical abuse.

A ruggedised mechanical design utilizing 316 stainless steel, encapsulated electronics and industry proven connector protects the transducer from seawater corrosion and high impact mechanical shock.

The DT has an internal integrated snubbing mechanism to prevent peak pressure damage to the sensor face, minimizing the effect of long term fatigue. The ceramic sensor element eliminates problems commonly associated with conventional units such as corrosion and deformation damage to the sensor face. The PT doesn't require a snubber attachment because there is no surge creating a massive peak.

Our improved design extends the working life of the transducer well beyond conventional units.

The PT and DT range have been specifically designed to integrate with the GunLink products, including 2000, 2500 and 4000. This cross platform compatibility ensures repeatable and reliable performance and operability in the field with minimum effort and re-configuration. Seamap Analogue transducers are optimized to operate with GunLink 2000, but are compatible with all industry controllers, such as Digishot, GCS90, Big Shot etc.

SEAMAP GUNLINK TRANSDUCERS



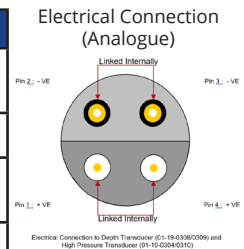
GUN DEPTH AND LINE PRESSURE TRANSDUCERS

Specifications: (Analogue and Digital)

| Performance (Gun Depth Transducer) | |
|------------------------------------|--|
| Operating Range 0-40 Meters | Frequency 6,000Hz - 10,000Hz (100Hz/meter) |
| Full Scale Depth Range | 40 meter seawater |
| Maximum Tolerable Depth | 150 meter seawater |
| Accuracy (10bar, @25°C) | <+/- 5cm (calibrated) |
| Cable Length (Analogue) | 700m (22AWG) |
| Sensing Element | Ceramic thick film piezo-resistive |

| Performance (High Pressure Transducer) | |
|--|---------------------------------------|
| Operating Range 15 psi - 3,000 psi | Frequency 6,015Hz - 9,000Hz (1Hz/psi) |
| Full Scale Range | 3,000psi |
| Maximum Tolerable Pressure | 4,500psi |
| Accuracy (200bar, @25°C) | <+/- 1.5psi (calibrated) |
| Cable Length (Analogue) | 700m (22AWG) |
| Sensing Element | Ceramic thick film piezo-resistive |

| Electrical Specification (Analogue) | |
|-------------------------------------|--|
| Connector | Standard is AGM-1704M as per the wiring shown. Option is AGP2702F to be directly compatible with AG. |
| Operating Voltage | 24Vdc, 30mA nominal, reverse voltage and short circuit protected |
| Compatibility | Optimised for use with GL2000, fully compatible with Digishot and other controllers |
| Data Output Method | Continuous pulse output on the 24Vdc line, 1Hz per psi/cm change at input |



| Electrical Specification (Digital) | |
|------------------------------------|---|
| Connector | Direct bulkhead mount to GL module. Short pigtail with Datamate connector to plug directly in to the GL electronics |
| Operating Voltage | 5Vdc from GL electronics. Operates at CMOS levels |
| Compatibility | GunLink 2500 and 4000 |
| Data Output Method | CMOS level data string, RS232 |

| Operating Environment | | Electrical Connection (analogue / digital) | | Mechanical (analogue / digital) | |
|-----------------------|---------------|--|--------------|---------------------------------|---------------------|
| Operating Temp | -20°C to 80°C | Pin 1 | +Vdc / +5Vdc | Housing Material | Stainless Steel 316 |
| Shock Tested | 80G | Pin 2 | Gnd / Gnd | Length | 28.5cm / 6cm |
| | | Pin 3 | Gnd / RX | Diameter | 4.7cm / 3.6cm |
| | | Pin 4 | +Vdc / TX | Weight | 1.5kg / 0.3kg |

| Part # | Analogue Transducers - Description | Part # | Digital Transducers - Description |
|------------|---|--------------|---|
| 01-19-0304 | Transducer, Line Pressure 3000psi AGM-M, 200bar (4-pin) | 02-94-6815 | GL4K Digital Depth Transducer Unit (10bar) |
| 01-19-0308 | Transducer, Gun Depth, 0-40m, AGM-M, 10bar (4-pin) | 02-94-6810 | GL4K Digital Pressure Transducer Unit (200bar) |
| 01-19-0309 | Transducer, Gun Depth, 0-40m, AGP-F, 10bar (2-pin) | 05-94-5477-A | Depth Transducer Insert NPT Port Dynamic Pressure |
| 01-19-0310 | Transducer, Line Pressure 3000psi AGP-F, 200bar (2-pin) | | |

Other options available on request.

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