

# Model 511

HAMMER UNION PRESSURE TRANSMITTER



## Viatran 511 Hammer Union Pressure Transmitter for measuring pump discharge pressure for drilling, fracturing, acidizing, cementing and nitrogen injection.

- Patented<sup>†</sup> Design to withstand extreme vibration and abusive impact
- Impervious to Fluid Ingress with patented angled connector base, drain holes, and sealing method
- Easy Access Connector Housing - 77% greater area
- Expanded compensated temperature range
- Improved sealing method for connector pins
- External adjust, identification and peak pressure capture
- RoHS compliant



### PERFORMANCE

|  |  |
|--|--|
| Full Scale Pressure Ranges.....  | 0-5K, 0-6K, 0-10K, 0-15K, 0-20K PSIS (0-350, 410, 700, 1000, 1400 Bar) |
| Combined Accuracy (BFSL)<br>(Non-Linearity, Hysteresis & Repeatability)..... | $\leq \pm 0.25\%$ FSO  |
| Full Scale Output (FSO).....   | 16.00 mA $\pm 1\%$ FSO @70°F   |
| Zero Balance.....  | 4 mA $\pm 1\%$ FSO @70°F   |
| Compensated Temperature Range.....   | +40°F to 140°F (4°C to 60°C)   |
| Operating Temperature Range.....   | -40°F to 185°F (-40°C to 85°C)   |
| Storage Temperature Range.....   | -67°F to 302°F (-55°C to 150°C)  |
| Long Term Stability (%FSO).....  | $\leq \pm 0.25\%$ FSO per 6 months                                     |
| Thermal Effect on Zero.....  | $\leq \pm 1\%$ FSO per 100°F Typical                                   |
| Thermal Effect on Span.....  | $\leq \pm 1\%$ FSO per 100°F Typical                                   |

### ELECTRICAL

|                              |  |
|------------------------------|--|
| Output Signal.....           | 4-20 mA @70°F  |
| Supply Voltage.....          | 9-28 Vdc   |
| Power Supply Regulation..... | $\leq \pm 0.01\%$ FSO per volt   |
| Load Impedance.....          | 900 ohms @ 28 VDC decreasing linearity to 0 ohms @ 9 VDC   |
| Circuit Protection.....      | Reverse polarity protected   |
| RFI/EMI.....                 | $< 1\%$ FSO output change with 3V Rms from 150 kHz to 80 MHz (80% AM modulated at 1 kHz) applied to power supply and signal lines [IEC 61000-4-6 radio frequency common mode immunity], 1% output change when exposed to a radiated electromagnetic field of 10 V/m from 80 MHz to 1 GHz AM modulated at 1 kHz and 3 V/m 1.4 GHz to 2.7 GHz. [IEC 61000-4-3 Radiated electromagnetic field immunity] |



\* Pending

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|                                       |   |
|---------------------------------------|---|
| Voltage Spike Protection .....        | Withstand 1000 volt spike per EN 61000-4-5  |
| Insulation Resistance.....            | <5 nS   |
| Response Time.....                    | <1 millisecond to reach 90% of FSO  |
| Range Calibration Signal.....         | 100% FSO $\pm$ 10% by exciting pins E&F   |
| Calibration Power Supply Voltage..... | 8.5-28 VDC  |
| Calibration Signal Accuracy.....      | Readings on calibration certificate are within $\pm$ 0.2% FSO of actual Cal signal output |
| Bridge Resistance.....                | 10K ohms, nominal   |
| Standard Electrical Connection.....   | Mates with 6 pin, Hermetic, Box Mount, Shell Size 10, MIL-C-26482 bendix type connector   |

### MECHANICAL

|                                     |   |
|-------------------------------------|---|
| Standard Pressure Port.....         | Male hammer union 2 inch #1502  |
| Pressure Cavity Volume .....        | Standard: 0.45 cubic inches Option "TP": 0.22 cubic inches                |
| Zero Effect from Installation ..... | < $\pm$ 0.3% FSO w/200 ft-lbs torque on union #1502                       |
| Shock Sensitivity .....             | 1000 g, 0.5 ms half sine wave pulse shall not cause change in calibration |
| Proof Pressure .....                | 1.67X range or 22,500 PSI max   |
| Burst Pressure .....                | 3 times full scale pressure range, limited by union #1502: 22.5K PSI      |

### MATERIALS OF CONSTRUCTION

|                         |   |
|-------------------------|---|
| Wetted Materials .....  | NACE compliant Inconel 718 wetted material as standard (MR0175/ISO 15156-3:2009(E)) |
| Enclosure Material..... | 304 Stainless Steel   |
| Identification .....    | Laser marked on body of unit  |
| Enclosure Rating .....  | IP68*, NEMA 6P*   |
| Weight.....             | 5.6 lbs. nominal  |

### OPTIONS

|          |  |
|----------|--|
| DC ..... | Compensated temperature -40°F to 140°F                     |
| DG ..... | Improved temperature compensation                          |
| DH ..... | Special Range  |
| DN ..... | Improved accuracy  |
| EA.....  | Special Calibration Run                                    |
| EH.....  | Compensated temperature range 40°F to 180°F                |
| LW.....  | Narrow adapter for banding                                 |
| NA.....  | Carrying handle attached                                   |
| NH ..... | Customer specific identification                           |
| NP.....  | Protective ring cage                                       |
| NQ.....  | Protective criss-cross cage                                |
| QJ.....  | 17-4 PH wetted material, heat treated per NACE MR0175-2000 |
| Z()..... | Special connectors   |

### APPROVALS

|          |  |
|----------|--|
| NX ..... | Canada Intrinsic Safety Label              |
| TJ.....  | Canada Non-Incendive Label                 |
| NK ..... | Europe Intrinsic Safety Label              |
| TK.....  | Europe Non-Incendive                       |
| KH ..... | IECEX International Intrinsic Safety Label |
| TW*..... | GOST-R                                     |
| TF.....  | US Intrinsic Safety Label                  |
| NZ ..... | US Non-Incendive                           |
| TG ..... | US & Canada Intrinsic Safety Labels        |

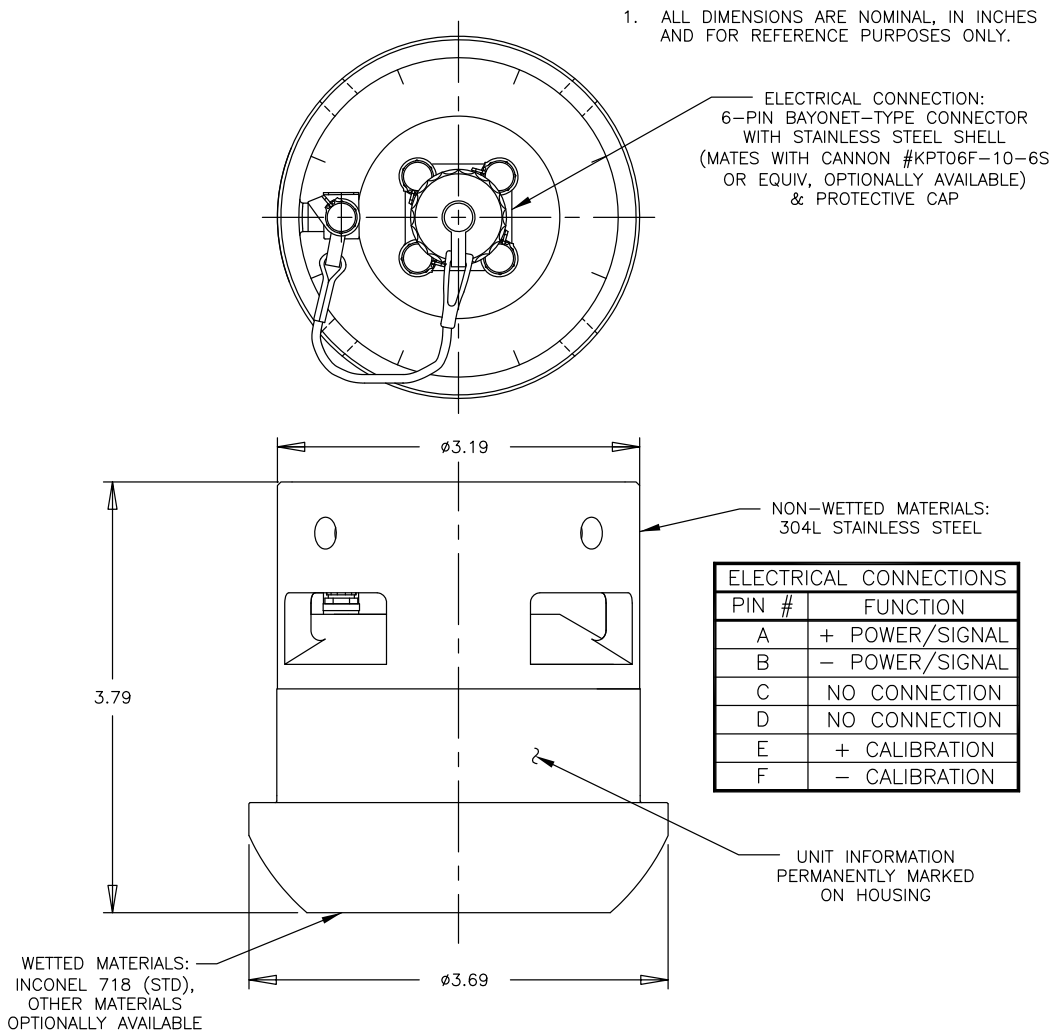
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PAGE 2

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## CERTIFICATIONS (CONSULT FACTORY FOR AVAILABLE OPTIONS)

- USA Intrinsic Safety: Class I, Division 1, Groups A-D, Zone 0, AEx ia IIC, T4: Ta -40° to 85°C, T5: -40° to 40°C, NEMA Type 6P, IP68  
 Non-Incendive: Class I, Division 2, Groups A-D, Class 1 Zone 2, AEx nA IIC, T4 -40° to 85°C, T5: -40° to 40°C, NEMA Type 6P, IP68
- CANADA Intrinsic Safety: Class I, Division 1, Groups A-D, Class 1 Zone 0 Ex ia IIC, T4: -40° to 85°C, T5: -40° to 40°C, NEMA Type 6P, IP68  
 Non-Incendive: Class I, Division 2, Groups A-D, Class 1 Zone 2, Ex nA Group IIC, T4: -40° to 85°C, T5: -40° to 40°C, NEMA Type 6P, IP68
- IECEX Intrinsic Safety: II 1G, Ex ia IIC, T4 Ga, Ta: -40° to 85°C, T5: -40° to 40°C, IP68  
 Non-Sparking: I1 3 G, Ex nA IIC T4 Gc, Ta -40° to 85°C T5: -40° to 40°C, IP68
- EUROPE Intrinsic Safety: II 1G Ex ia IIC, T4 Ga, Ta -40° to 85°C T5: -40° to 40°C, IP68
- EMC Directive 2004/108/EC EN 61326-1:2006



Information is accurate to the best of Viatran's knowledge. We reserve the right to change specifications at any time. Please contact Viatran for specific order inquiries.

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## EXTERNAL CALIBRATION

- Trim zero and full scale with pressure source using DevCom 2000-LT desktop software
- Record 4 pressure spikes up to 140% of rated pressure and cumulative time on
- Digital output resolution +/- 0.06%
- Factory reset option
- Non interactive zero and span adjustment

## EXTERNAL CALIBRATION ACCESSORIES:

DevCom 2000-LT Desktop software

### **System Requirements (minimum)**

Operating System Windows NT, 2000, XP, Vista (32/64), 7 (32/64), 8 (32/64)

Processor Speed Pentium, 600 Mhz

Memory 256 MB

Hard Disk Space 500 MB

Monitor 256-color VGA

Communication Port USB, RS232, or Bluetooth

HART<sup>®</sup> Modem (Various PC connections and cable lengths/connections available)

24VDC power source

Power Xpress kit

250 ohm resistor

†US Patent D 711266  
‡EU Patent No. 002334250-001  
†CN Patent ZL 201330527540.1  
† Patents Pending

\*HART<sup>®</sup> is a registered trademark of the HART<sup>®</sup> Communications Foundation

PAGE 4

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