

# 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) (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 .....	Extended Compensated Temperature Range (Cold) -40°F to 140°F (-40°C to 60°C)
DG .....	Improved temperature compensation
DH .....	Special Range
DN .....	Improved accuracy
EA .....	Special Calibration Run
EH.....	Extended Compensated Temperature Range (Hot) +40°F to 180°F (4°C to 82°C)
LW.....	Narrow adapter for banding
NA.....	Carrying handle attached
NH .....	Customer specific identification
NP.....	Protective ring cage
NQ.....	Protective criss-cross cage
Z() .....	Special connectors

### APPROVALS

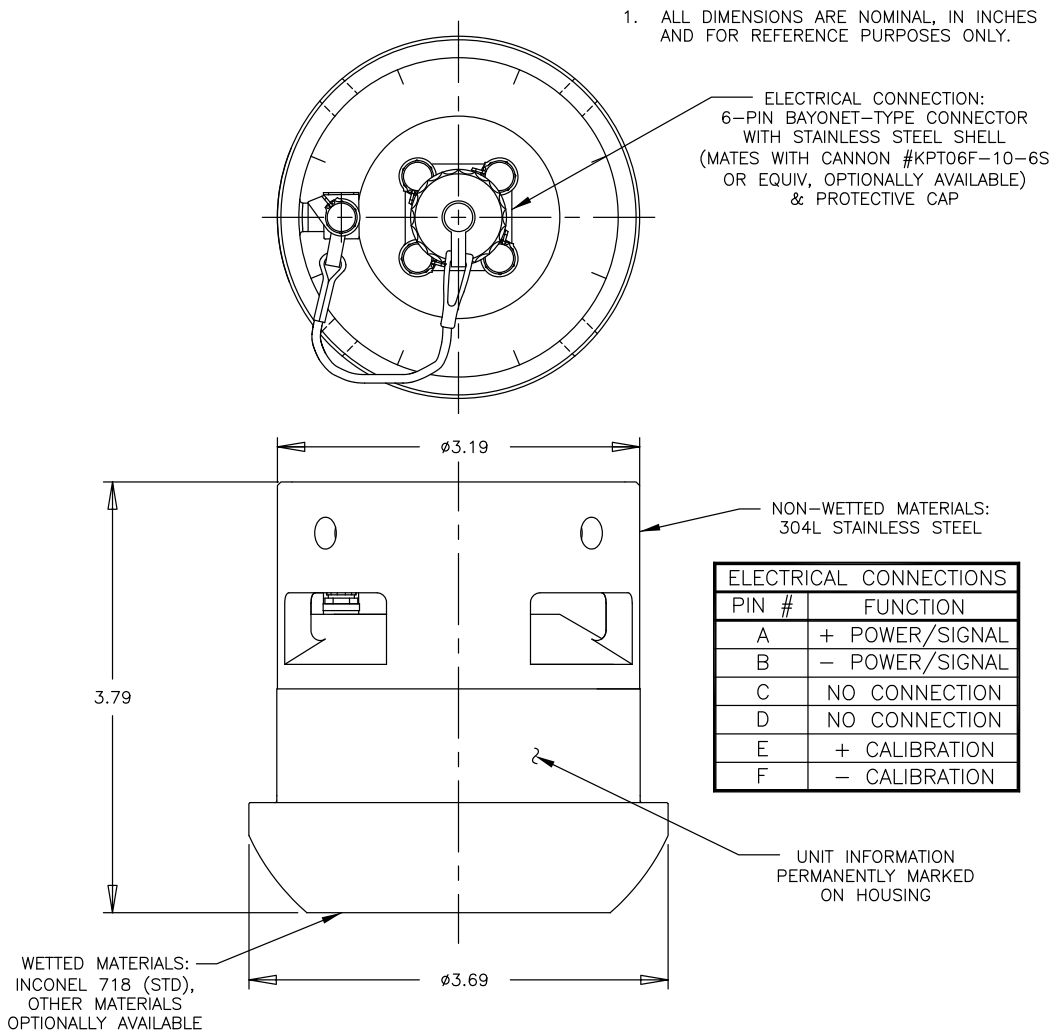
NX .....	Canada Intrinsic Safety Label
TJ.....	Canada Non-Incendive Label
NK .....	Europe Intrinsic Safety Label
TK.....	Europe Non-Incendive
KH .....	IECEX International Intrinsic Safety Label
TW*.....	GOST-R
TF.....	US Intrinsic Safety Label
NZ .....	US Non-Incendive
TG .....	US & Canada Intrinsic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

\* Pending

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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

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