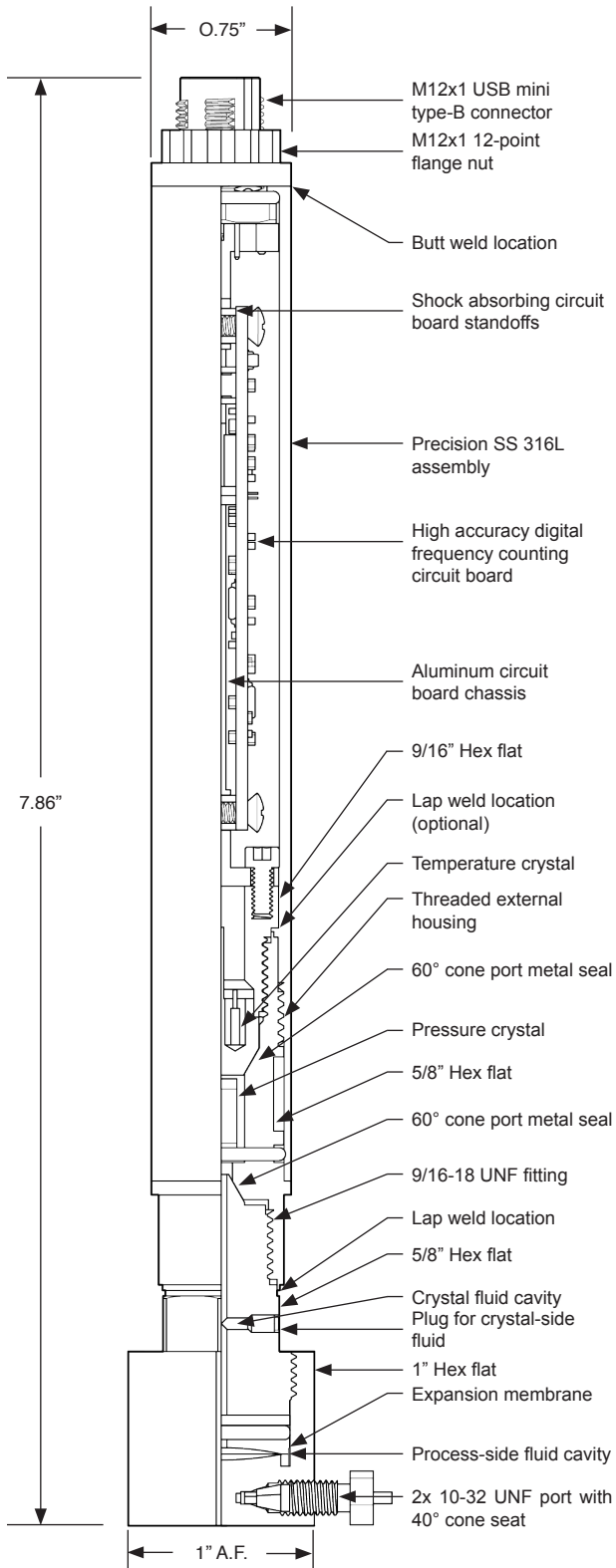


PHASE ADVANCED SENSOR SYSTEMS
PASSION REFLECTED THROUGH DESIGN



XTALX LABORATORY USB QUARTZ
PRESSURE SENSOR
LUQS1-0000-1111
0000: PRESSURE RATING
1111: TEMPERATURE RATING



SPECIFICATION HIGHLIGHTS

CALIBRATED RANGE----- 50 TO 10,000psi (3.5 TO 690 BAR)
CALIBRATED TEMPERATURE RANGE ----- 10° TO 60°C
PRESSURE ACCURACY ----- 0.02% F.S.
DRIFT @ MAX TEMPERATURE & PRESSURE ----- 0.1% F.S./YEAR
TEMPERATURE ACCURACY ----- 0.05°C
DRIFT @ MAX TEMPERATURE & PRESSURE ----- 0.01°C/YEAR

MECHANICAL SPECIFICATIONS

WEIGHT: ----- 325 grams
HEIGHT: ----- 200 mm (7.86")
MAXIMUM WIDTH: ----- 25.4 mm (1.0")
PROOF PRESSURE: ----- 103 MPa (15,000psi)
DEAD VOLUME: ----- 0.1 mL

ELECTRICAL SPECIFICATIONS

MAXIMUM VOLTAGE RATINGS ----- -0.3 TO 24V DC
VOLTAGE SUPPLY RANGE ----- 2.7 TO 20V DC
CURRENT DRAW @ 25°C ----- 24 mA
CURRENT DRAW @ F.S. TEMP ----- 25 mA
OUTPUT ----- USB 2.0
ESD ----- IEC 61000-4-2 ±15 kV

OSCILLATOR SPECIFICATIONS

NOMINAL REFERENCE FREQUENCY ----- 170 MHz ± 10 PPM
NOMINAL PRESSURE FREQUENCY ----- 52 KHz ± 500 hz
NOMINAL TEMPERATURE FREQUENCY ----- 262 KHz ± 200 hz

ADDITIONAL SPECIFICATIONS

STORAGE TEMPERATURE ----- -65° TO 85°C
ACHIEVABLE RESOLUTION ----- 0.002psi
REPEATABILITY ----- 0.01% F.S.
NOMINAL SENSITIVITY ----- 3psi/Hz
RESPONSE TIME ----- 0.1s
GRAVITATIONAL EFFECTS ----- NEGLIGIBLE
ORIENTATIONAL EFFECTS ----- NEGLIGIBLE
ACCELERATION SENSITIVITY ----- NEGLIGIBLE
STARTUP TIME @ 25°C ----- <1s
PEAK INRUSH CURRENT @ 25°C ----- 25 mA
STARTUP TIME @ F.S. TEMP ----- <1s
PEAK INRUSH CURRENT @ F.S. TEMP ----- 26 mA

PHASE ADVANCED SENSOR SYSTEMS
PASSION REFLECTED THROUGH DESIGN



XTALX DOWNHOLE SQUAREWAVE
QUARTZ PRESSURE SENSOR
DSQS1-10000-170
10000: PRESSURE RATING
107: TEMPERATURE RATING

SPECIFICATION HIGHLIGHTS

CALIBRATED PRESSURE RANGE ---- 0 to 10,000psi (0 to 690 BAR)
 CALIBRATED TEMPERATURE RANGE ----- 25° to 170°C
 PRESSURE ACCURACY ----- 0.05% F.S.
 DRIFT @ MAX TEMPERATURE & PRESSURE ----- 0.05% F.S./YEAR
 TEMPERATURE ACCURACY ----- 0.1°C
 DRIFT @ MAX TEMPERATURE & PRESSURE ----- 0.02°C/YEAR

MECHANICAL SPECIFICATIONS

WEIGHT: ----- 286 ±1 grams
 HEIGHT: ----- 147 mm (5.79")
 MAXIMUM WIDTH: ----- 25.4 mm (1.0")
 PROOF PRESSURE: ----- 103.4 MPa (15,000psi)

ELECTRICAL SPECIFICATIONS

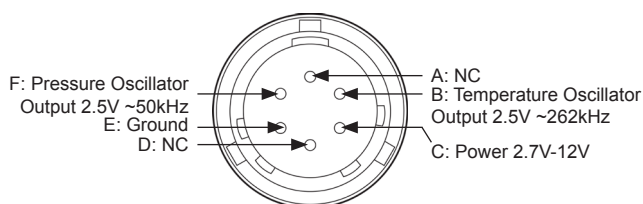
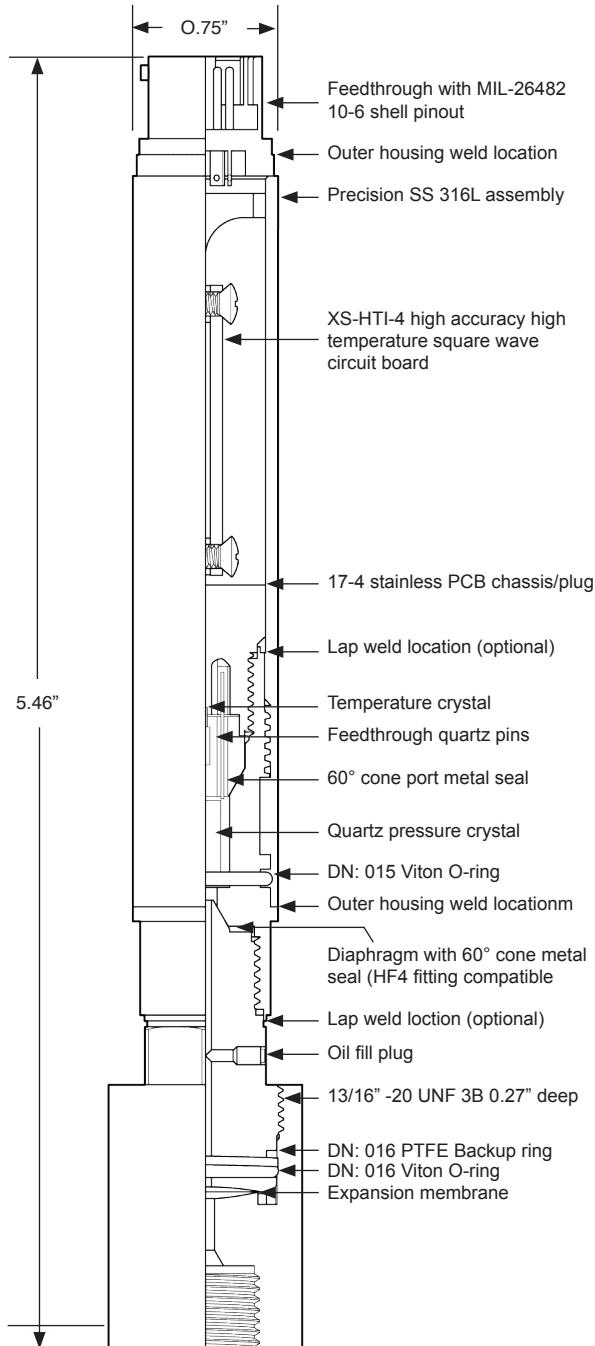
MAXIMUM VOLTAGE RATINGS ----- -0.3 TO 13.5V DC
 VOLTAGE SUPPLY RANGE ----- 2.7 TO 12V DC
 CURRENT DRAW @ 25°C ----- 850 µA
 CURRENT DRAW @ F.S. TEMP ----- 1.6 mA
 ESD ----- ±2 kV

SIGNAL OUTPUT SPECIFICATIONS

PRESSURE FREQUENCY SIGNAL PIN ----- Pin F
 PRESSURE FREQUENCY SIGNAL ----- 2.5 Vpp Square Wave
 PRESSURE FREQUENCY RANGE ----- 45 kHz ← → 52 kHz
 TEMPERATURE FREQUENCY SIGNAL PIN ----- Pin B
 TEMPERATURE FREQUENCY SIGNAL ----- 2.5 Vpp Square Wave
 TEMPERATURE FREQUENCY RANGE ----- 262 kHz ← → 264 kHz

ADDITIONAL SPECIFICATIONS

STORAGE TEMPERATURE ----- -65° to 170°C
 ACHIEVABLE RESOLUTION ----- 0.002psi
 REPEATABILITY ----- 0.05% F.S.
 NOMINAL SENSITIVITY ----- 3psi/Hz
 RESPONSE TIME ----- 0.1 s
 GRAVITATIONAL EFFECTS ----- NEGLIGIBLE
 ORIENTATIONAL EFFECTS ----- NEGLIGIBLE
 ACCELERATION SENSITIVITY ----- NEGLIGIBLE
 STARTUP TIME @ 25°C ----- ~220 ms
 PEAK INRUSH CURRENT @ 25°C ----- 1.3 mA
 STARTUP TIME @ F.S. TEMP ----- ~290 ms
 PEAK INRUSH CURRENT @ F.S. TEM ----- 2.5 mA
 AVERAGE LIFETIME EXPECTANCY @ 150°C ----- 2 YEARS
 AVERAGE LIFETIME EXPECTANCY @ 175°C ----- 6 MONTHS
 AVERAGE LIFETIME EXPECTANCY @ 210°C ----- 30 DAYS



PHASE ADVANCED SENSOR SYSTEMS
PASSION REFLECTED THROUGH DESIGN

**XTALX DOWNHOLE DIGITAL QUARTZ
PRESSURE TRANSDUCER
DDQS1-10000-150
10000: PRESSURE RATING
150: TEMPERATURE RATING**



SPECIFICATION HIGHLIGHTS

CALIBRATED PRESSURE RANGE ---- ATM to 10,000psi (1 to 690 BAR)
CALIBRATED TEMPERATURE RANGE ----- 20° to 150°C
PRESSURE ACCURACY ----- 0.02% F.S.
DRIFT @ MAX TEMPERATURE & PRESSURE ----- 0.02% F.S./YEAR
TEMPERATURE ACCURACY ----- 0.1°C
DRIFT @ MAX TEMPERATURE & PRESSURE ----- 0.02°C/YEAR

MECHANICAL SPECIFICATIONS

WEIGHT: ----- 325 GRAMS
HEIGHT: ----- 152 mm (6")
MAXIMUM WIDTH: ----- 25 mm (0.75")
PROOF PRESSURE: ----- 103 MPA (15,000psi)

ELECTRICAL SPECIFICATIONS

MAXIMUM VOLTAGE RATINGS ----- -0.3 TO 13.5V DC
VOLTAGE SUPPLY RANGE ----- 2.9 TO 12V DC
CURRENT DRAW @ 25°C ----- 29.2 mA
CURRENT DRAW @ F.S. TEMP ----- 37.5 mA
OUTPUT ----- TTL-232R-2V7
BAUD RATE ----- 57600
ESD ----- ±2kV
STARTUP TMIE & SETTLE TIME ----- 230 ms
MAX CURRENT CONSUMPTION ----- 40 mA
LOW POWER STATE CURRENT DRAW 1s SAMPLE @ 25°C -- 1.212 mA
LOW POWER STATE CURRENT DRAW 1s SAMPLE @ F.S TEMP - 2.9 mA
LOW POWER STATE CURRENT DRAW 9s SAMPLE @ 25°C ----- 400 uA
LOW POWER STATE CURRENT DRAW 9s SAMPLE @ F.S TEMP - 700uA

ADDITIONAL SPECIFICATIONS

STORAGE TEMPERATURE ----- -65° to 150°C
ACHIEVABLE RESOLUTION ----- 0.002psi
REPEATABILITY ----- 0.05% F.S.
NOMINAL SENSITIVITY ----- 3psi/Hz
RESPONSE TIME ----- 0.1s
GRAVITATIONAL EFFECTS ----- NEGLIGIBLE
ORIENTATIONAL EFFECTS ----- NEGLIGIBLE
ACCELERATION SENSITIVITY ----- NEGLIGIBLE
STARTUP TIME @ 25°C ----- 130 ms
PEAK INRUSH CURRENT @ 25°C ----- 37.12 mA
STARTUP TIME @ F.S. TEMP ----- 150 ms
PEAK INRUSH CURRENT @ F.S. TEM ----- 40 mA
AVERAGE LIFETIME EXPECTANCY @ 150°C ----- 2 YEARS
AVERAGE LIFETIME EXPECTANCY @ 175°C ----- 6 MONTHS
AVERAGE LIFETIME EXPECTANCY @ 210°C ----- 30 DAYS

