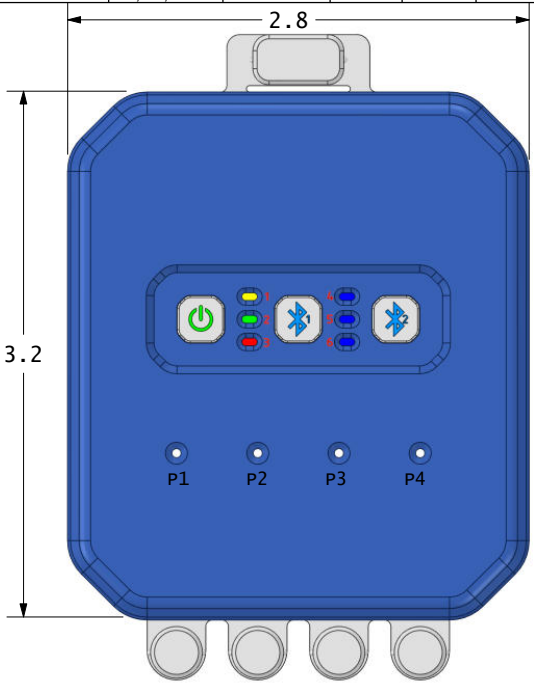
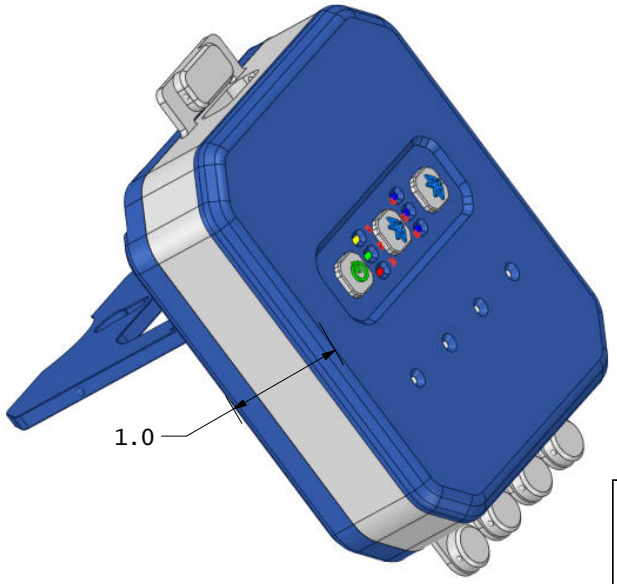
TABLE 1

PUI ITEM #	BLE PHY	TX-POWER	RANGE[1]	RANGE[2]	DIM A	NOTES
TT-BLE-01-XXXX	1M,2M	-40 - +4dBm	100M			
TT-BLE-02-XXXX	1M,2M	-40 - +4dBm	150M			
TT-BLE-03-XXXX	1M,2M	-40 - +20dBm	900M			POWER AMPLIFIER
TT-BLE-04-XXXX	1M,2M,CODED	-40 - +8dBm	120M	190M		
TT-BLE-05-XXXX	1M,2M,CODED	-40 - +8dBm	300M	500M		
TT-BLE-06-XXXX	1M,2M,CODED	-40 - +22dBm	720M	1000M		POWER AMPLIFIER

TABLE 2

DWG REV	ECO NUMBER	REV BY	DATE	DESCRIPTION
X1	21042901	DMO	04/29/21	ORIGINAL PRINT





OVERVIEW:

1) DESCRIPTION: TEMPERATURE TO BLUETOOTH LE TRANSMITTER - READS ANALOG TEMPERATURE SENSORS AND CONVERTS TO DIGITAL TEMPERATURE VALUE FOR WIRELESS TRANSMISSION
2) SENSORS (USER-CONFIGURABLE THROUGH SOFTWARE):
   - PT100 AND PT1000 RTDs, α = .00385, IN 2-WIRE OR 3-WIRE CONFIGURATION
   - STANDARD THERMOCOUPLE, EIGHT CURVES (B,E,J,K,N,R,S,T), USER-SELECTABLE
   - NTC THERMISTORS: 5K(BETA 3966), 10K(BETA 3575/3890/3435), 91K(BETA 4116), 100K(BETA 3892/4140)
3) TEMPERATURE OUTPUT:
   - ITS-90 TEMPERATURE SCALE. USER-SELECTABLE UNITS (CELSIUS, FAHRENHEIT, KELVIN)
   - THERMOCOUPLE STD LIMITS OF ERROR PLUS COLD JUNCT. COMP, INSTRUMENTATION & CONVERSION ERRORS: ± 0.5°C
   - RTD TOLERANCE PER DIN/IEC 60751 PLUS INSTRUMENTATION & CONVERSION ERRORS: ± 0.05°C
   - NTC THERMISTOR TOLERANCE PER SENSOR SPECIFICATION PLUS INSTRUMENTATION & CONVERSION ERROR:
     - 5K(BETA 3966), 10K(BETA 3575/3890/3435): ±0.5°C {-10°C TO 75°C}, ±1°C {-25°C TO 150°C}
     - 91K(BETA 4116), 100K(BETA 3892/4140): ±0.5°C {50°C TO 200°C}, ±1.2°C {0°C TO 300°C}
4) BUILD & FORM: ALL COMPONENTS PCB-MOUNTED. PCB ENCASED IN ABS-PLASTIC BOX WITH RUBBER BUTTONS AND SEAL GASKET. IN-BUILT STAND & MAGNET MOUNTS. FOUR TEMPERATURE PROBES INCLUDED PER 'XXXX' SECTION OF PART #
5) CONNECTIONS:
   - USB-C RECEPTACLE FOR OPTIONAL EXTERNAL 5VDC POWER INPUT AND CHARGING. USB STANDARD 2.0
   - 4X 3.5MM STEREO (3-TERMINAL) AUDIO JACKS, FOR PROBES WITH EITHER MONO OR STEREO PLUGS
6) LED INDICATORS: 1(ORANGE) ON = CHARGING, 2(GREEN) ON = POWER ON, 3(RED) ON = BATTERY LOW, 5(BLUE) = BLUETOOTH ACTIVITY, 4 & 6 (BLUE) UNUSED, P1-P4(WHITE) ON = PROBES 1-4 (RESPECTIVELY) USER-SELECTED, CONNECTED AND FUNCTIONAL
7) BUTTONS:- POWER: SHORT PRESS (APPROX. 1S) FOR POWER ON, LONG PRESS (2-3S) FOR POWER OFF
   - BLUETOOTH 1: DISCONNECT (LONG PRESS >2S), MODULE SLEEP, MODULE WAKE-UP
   - BLUETOOTH 2: WAKE UP AND ERASE ALL BONDS, TURN ADVERTISE WHITELIST OFF(LONG PRESS >2S)

TECHNICAL SPECIFICATIONS:

1) BLUETOOTH STANDARD & CERTIFICATIONS: BLUETOOTH V5.1, FCC/CE/IC (NO CE FOR TT-BLE-03-XXXX)
2) BLE CONFIGURATION: CONNECTION (GAP) PERIPHERAL. DATA (GATT) SERVER, CUSTOM SERVICE, 2 CHARACTERISTICS:
   - 1: WRITE/TRANSMIT COMMANDS TO DEVICE. INCLUDES USER CONFIGURATIONS / SELECTIONS
   - 2: SUBSCRIBE TO AND RECEIVE NOTIFICATIONS FROM DEVICE, INCLUDES TEMPERATURE, BATTERY LEVEL, APPLICATION CONFIGURATIONS
3) SERIAL INTERFACE: CUSTOM PROTOCOL, APPLICATION DATA BYTES TRANSLATED AS ASCII IN BOTH TX & RX DIRECTIONS
4) BLUETOOTH RANGE: DEPENDS ON DEVICE MODEL, USER CONFIGURATIONS (PHY, TX POWER) & APPLICATION ENVIRONMENT. TABLE 1 PROVIDES FOR REFERENCE, OUTDOOR LINE-OF-SIGHT RANGE WITH BOTH TRANSMITTER AND RECEIVER AT 6FT ELEVATION, MODEL'S MAXIMUM TX POWER, RANGE[1] = PHY 1MB, RANGE[2] = PHY CODED 125KB
5) OPERATIONAL STATE AND POWER CONSUMPTION ESTIMATES (POWER AMPLIFIER DISABLED / MAX TX POWER +8dB):
   - SYSTEM POWER OFF: 45µA
   - BLUETOOTH CONNECTED, ACTIVE TX/RX: 6-7mA
   - BLUETOOTH ADVERTISING: 1.6-2.5mA
   - BLUETOOTH SLEEP: 1.2-1.6mA
   - BLUETOOTH CONNECTED, INACTIVE: 2-3mA
6) BATTERY: - 1250mAH LITHIUM POLYMER, RECHARGEABLE, NONREMOVEABLE. BATTERY LIFE DEPENDS ON APPLICATION ENVIRONMENT, USER CONFIGURATION AND TIME SPENT IN EACH OPERATIONAL MODE. ESTIMATES FOR REFERENCE (CONTINUOUS OPERATION, POLLING FOUR CHANNELS WITH PT1000 PROBES EVERY 5S, ALL LEDS ENABLED):
   - 386HR (16 DAYS) WITH PHY 1M, TX POWER +4dB
   - 120HR (5 DAYS) WITH PHY 1M, TX POWER +20dB
7) EXTERNAL POWER / CHARGE: 5VDC ± 0.5 FROM STANDARD USB HUB (SDP,CDP) OR DEDICATED CHARGING PORT (DCP). USB SPECIFICATION BC1.1 COMPLIANT WHILE POWER ON. CURRENT DRAW MAX.500mA. BATTERY CHARGE 12-13HRS @100mA IN SLOW CHARGE (POWER OFF) ; 2.25-2.5HRS @500mA IN FAST CHARGE (POWER ON)
8) AVAILABLE USER CONFIGURATIONS/SELECTIONS (CUSTOM COMMANDS THROUGH BLE): ADVERTISING DURATION AND PHY; TRANSMIT POWER; SENSOR DATA INTERVAL; SENSOR TYPE; SENSOR CHANNEL; TEMPERATURE UNITS; BATTERY LEVEL; OPTIONAL LEDs EN/DISABLE; BOND DELETION; REMOTE SYSTEM SHUTDOWN

PUI
Manufacturers of OEM Sensing Devices
Probes Unlimited, Inc.
836 W. 8th Street
Lansdale, PA 19446
www.probesunlimited.com
info@probesunlimited.com

QUOTE #: TBD
CUSTOMER: PUI INTERNAL
APPROVED:

DRAWING #: TT-BLE-YY-XX

REV: X1

ALL DIMENSIONS ARE IN INCHES, STANDARD TOLERANCES UNLESS STATED OTHERWISE:

X.XX" = ± .01"
X.XXX" = ± .005"
ANGLES = ± 1°