



Introduction

The **Digital Pressure Temperature Sensor (DPTS)** is a device that measures pressure and up to two temperatures. The hardware is comprised of an integrated MEMS pressure sensor and an intelligent micro-processing unit. For best-in-class reliability, this integrated design does not use any O-ring for seals. The wiring harness (sold separately) for DPTS includes an external temperature sensor, RS485 communication wires, power input wires, PWM output wires and two general purpose wires for an option to add a second temperature sensor. The end user communicates with the DPTS using MODBUS RTU interface controller or by using DMQ's Windows operating system based graphical user interface. The DPTS can be used in Pneumatic, Hydraulic and HVAC-R applications.

Principle of Operation

The DPTS is installed on a 1/4" SAE 45° flare male fitting for pressure measurements and the temperature sensor(s) can be installed at any location of interest in the system. The end user may utilize pressure and/or temperature readings as input to send a desired fixed or variable PWM output to electrical equipment, such as, actuators, LED lights, or compressor contactor via solid state relay.



Figure 1: DPTS Features & Capability

Technical Specifications

Table 1: DPTS Technical Specifications

Model Numbers	DPTS-G1.3b-BAAAXXX (Single temperature sensor) DPTS-G1.5a-BAAAXXX (Single temperature sensor)
Suitable Environmental Temperature	-40°F ~ 158°F (-40°C ~ 70°C)
Suitable Environmental Humidity	< 95% RH
Voltage Input	12VDC ±15% for (12V device) or 24VDC ±15% for (24V device)
Power Consumption	P ≤ 40W Load @ 95% Duty Cycle @ 24VDC No Load: P < 500mW @ 24VDC
Operating Pressure	5 to 225 psig (35 KPa to 1.55 MPa)
Pressure Accuracy	± 1.5 psi for 5 psig < P ≤ 185 psig, -4°F ~104°F (-20°C ~ 40°C)
External Temperature Sensor Accuracy	± 2.2°F for -40°F to +158°F (-40°C to +70°C)
Proof Pressure	600 psi (4.14 MPa)
Burst Pressure	1500 psi (10.34 MPa)
Applicable Medium	<ul style="list-style-type: none"> • Gas: N2, CO2, Ultra dry air • Hydraulic Oils • Refrigerants: All ASHRAE safety group A1, A2 and A2L refrigerants such as R134A, R22, R404A, R410A. • Refrigerant Oils: Polyolester (POE); Polyalkylene Glycol (PAG); Mineral Oil (MO); Polyvinylether (PVE) Call for all other fluids for compatibility
Communication	Connect through an Isolated RS485 adapter or directly with an isolated RS485 MODBUS Controller
Fluid Connections	Female ¼" SAE Flare – (7/16"-20)
Service Life	5 years
Weight	2.65 oz (75g)
Dimensions	2.15"x1.78"x1.41" (54.6mm x 45.1mm x 35.8mm)
Product listing and certifications	UL, FCC, IP67

DPTS and Wire Harness (WH-USHX-AX) Schematic

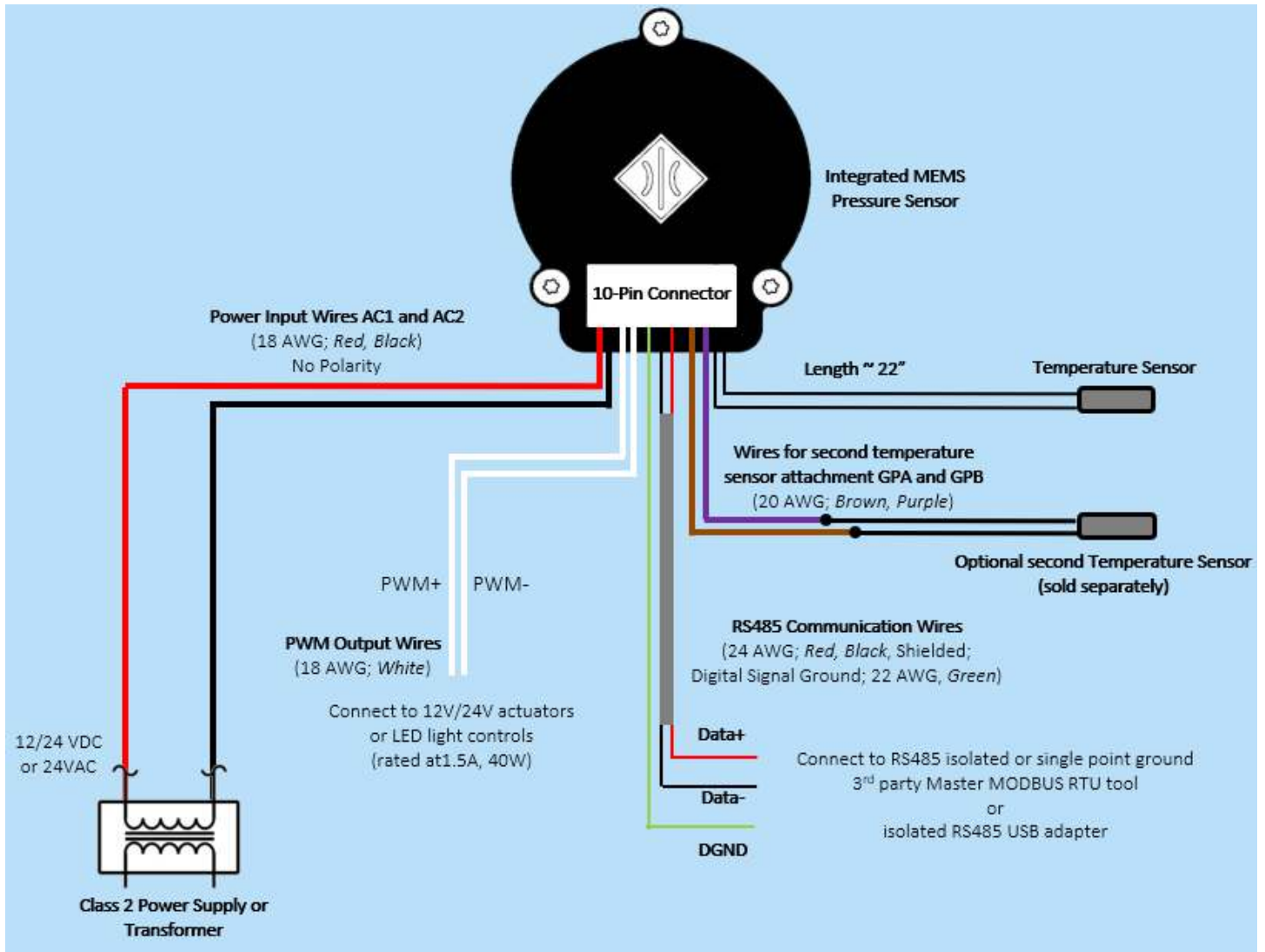


Figure 2: DPTS with WH-USHX harness

DPTS and Wire Harness (WHUA-B1A11-A) Schematic

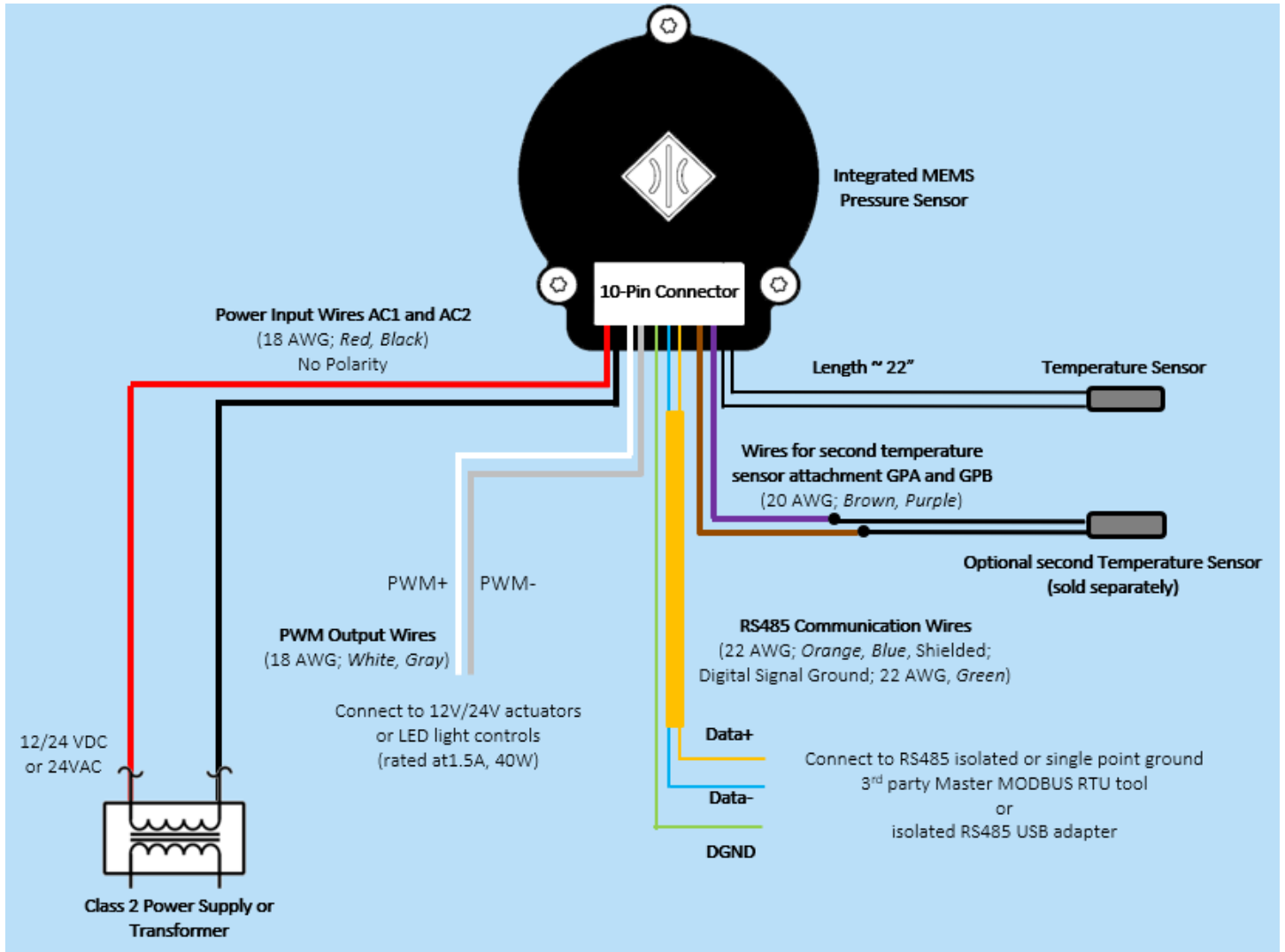


Figure 3: DPTS with WHUA-B1A11-A harness

Physical Dimensions and Product Markings

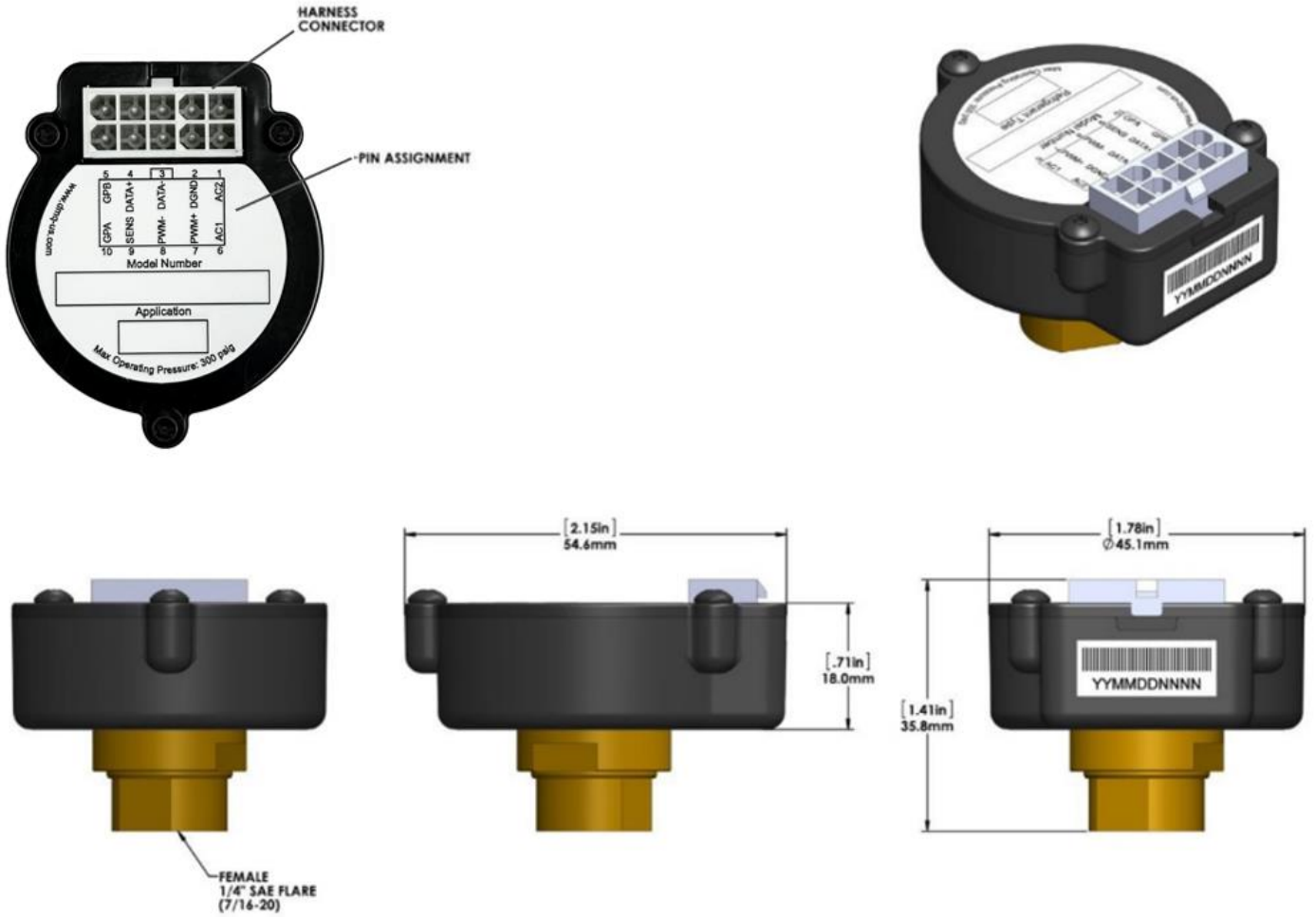


Figure 3: DPTS Physical dimensions and Product markings