



Introduction

The **Digital Pressure Temperature Sensor (DPTS)** is a device that measures pressure and up to two temperatures. The hardware is comprised of integrated MEMS pressure sensor and an intelligent micro-processing unit. The integrated design does not use any O-ring for seals for best-in-class reliability. 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 second temperature sensor. The end user can communicate with DPTS using via MODBUS RTU protocol or by using DMQ's windows based graphical user interface.

Principle of Operation

The DPTS can be installed on a 1/4" access fitting for pressure measurements and the temperature sensors can be installed at any location of interest in the system. End user may utilize pressure and/or temperature readings as input to trigger a preprogrammed PWM output to electrical equipment such as actuators or LED lights. Additionally, end user can utilize a system MODBUS master controller to instruct the DPTS to output a desired fixed or variable PWM. It can also be used as a real-time superheat sensor when installed at the evaporator outlet of an HVAC-R system.

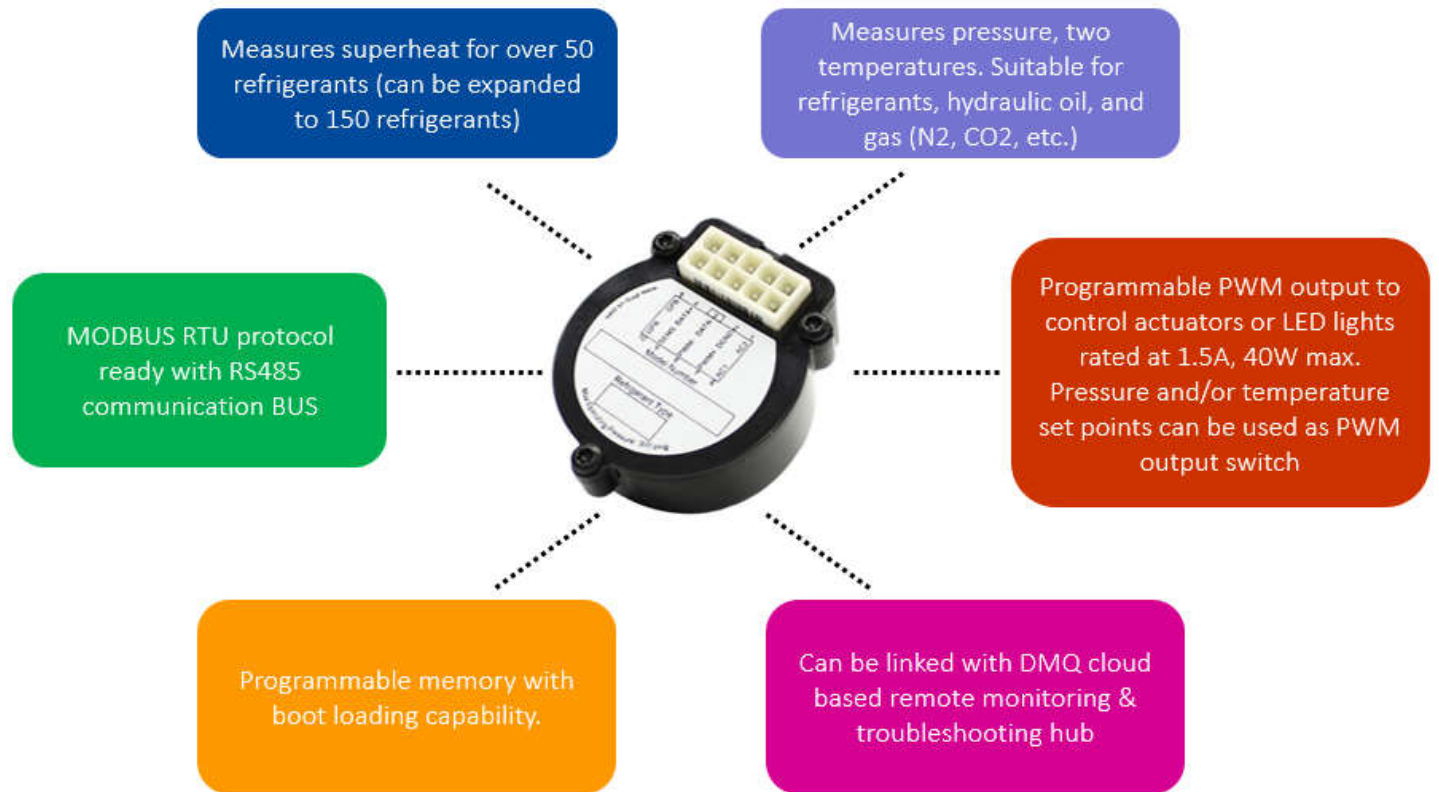


Figure 1: DPTS Features & Capability

Technical Specifications

Table 1: DPTS Technical Specifications

Model Numbers	DPTS-G1.3b-BAAAXXX (Single temperature sensor) DPTS-G1.3b-BAAABXX (Two temperature sensors)
Suitable Environmental Temperature	-40°F ~ 158°F (-40°C ~ 70°C)
Suitable Environmental Humidity	< 95% RH
Voltage Input	12VDC ±15% for (12V device) or 24VAC ±15% (50/60 Hz ± 1%) or 24VDC ±15% for (24V device)
Power Consumption	P ≤ 40W Load @ 95% Duty Cycle @ 24VDC No Load: P < 500mW @ 24VDC
Operating Pressure	21 to 240 psia (145 KPa to 1.65 MPa)
Pressure Accuracy	± 1.5 psi for 20 psia < P ≤ 200 psia, -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 Hardware Layer	Non-Isolated RS-485 Half-Duplex. An external isolated RS-485 adapter is required when communicating with the DPTS
Fluid Connections	Female ¼" SAE Flare – (7/16"-20)
Service Life	5 years
Weight	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 Schematic

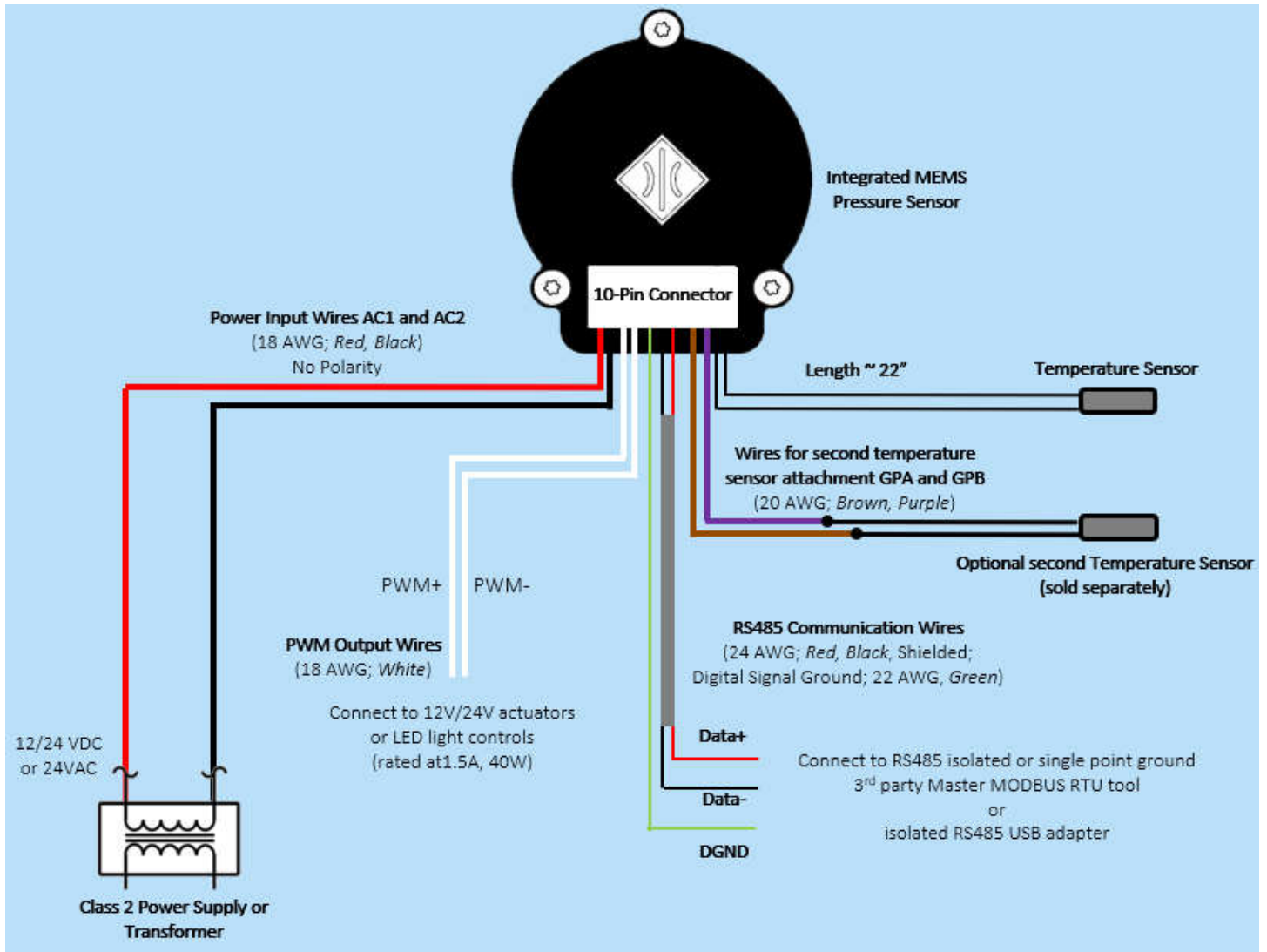


Figure 2: DPTS with WH-USHX harness. Harness options can vary.

Physical Dimensions and Product Markings

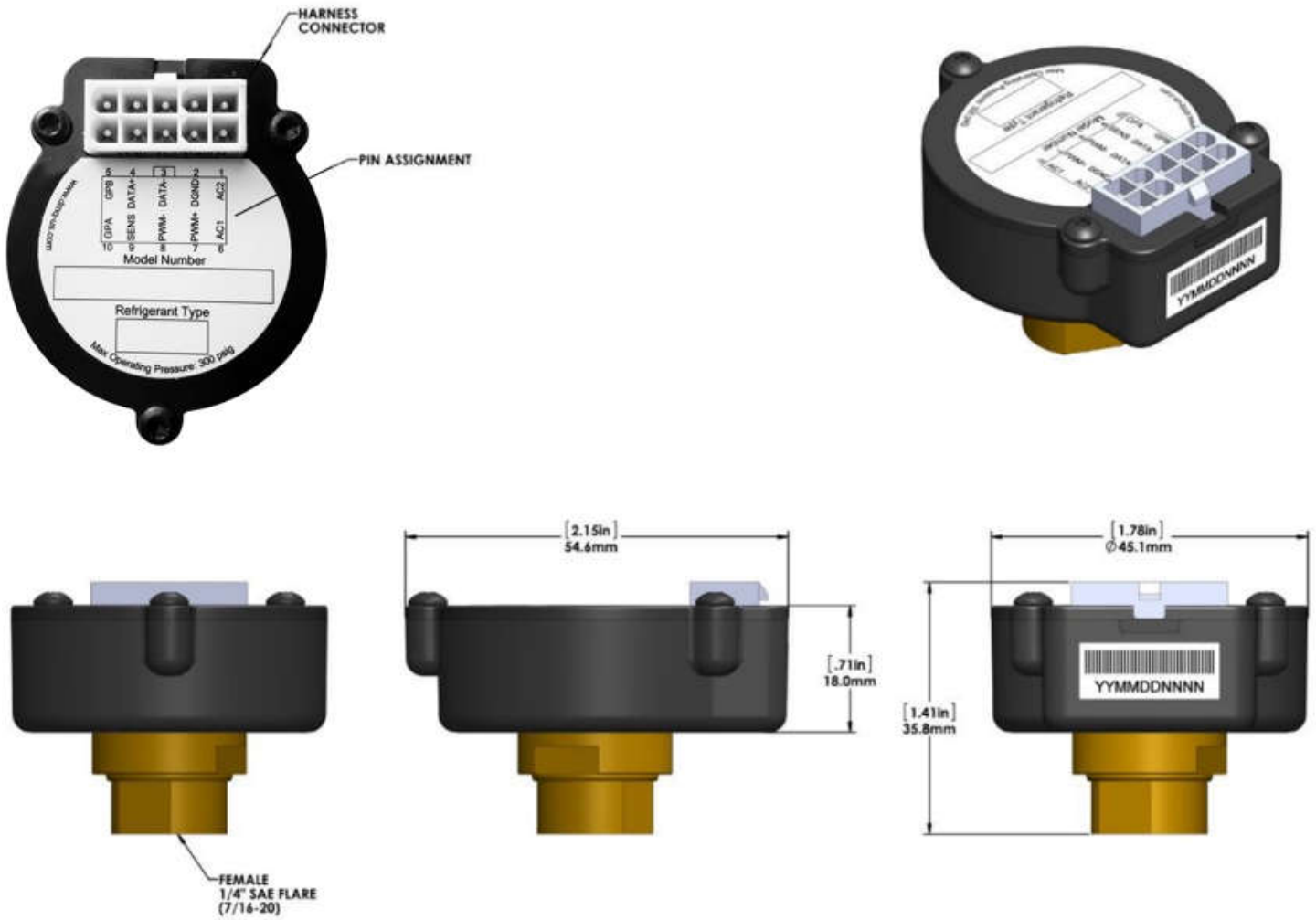


Figure 3: DPTS Physical dimensions and Product markings