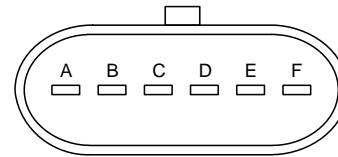


Features:

- 54 degree travel
- Holding Force 5 lbs.
- Threaded Brass Inserts for Mounting
- Dual Ratiometric APS output
- Independent, Isolated APS Circuit
- Electronics IP66 sealed
- +5V Operation
- -40°C to + 85°C operation
- Design Life 100K Cycles
- Metripak 150-series compatible connector
- Protected against electrical misconnection (indefinite duration)

**Connector Pinout**

View Facing Connector End

Pin	Function	Pin	Function
A	APS1	D	VCC2 (+5V)
B	GND1	E	GND2
C	VCC1 (+5V)	F	APS2

Mating Connector – Delphi-Metripak P/N **12066317** or equivalent

Applications:

- Throttle with position sensor for off-highway applications
- Sensor commonly applied to:
 - Cummins 07

Description:

The Hand Control is a single-axis hand control with electronic output designed for use in a variety of off-road applications.

The Hand Control's versatile design allows it to be fitted with different contact or non-contact type position sensors and different lever arms, depending on specific customer requirements.

The assembly body is molded Nylon 6/6, and features a powder-coated steel lever arm with padded vinyl knob.

Absolute Maximum Electrical/Mechanical Ratings

Supply Voltage (APSVCC, IVSCOM)	-5V to +5V
Output Current (APS1, APS2 output)	+/-10 mA
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
APS short circuit duration to ground	Indefinite
APS short circuit duration to VCC	Indefinite

Operation of this device beyond absolute maximum ratings may result in permanent damage.

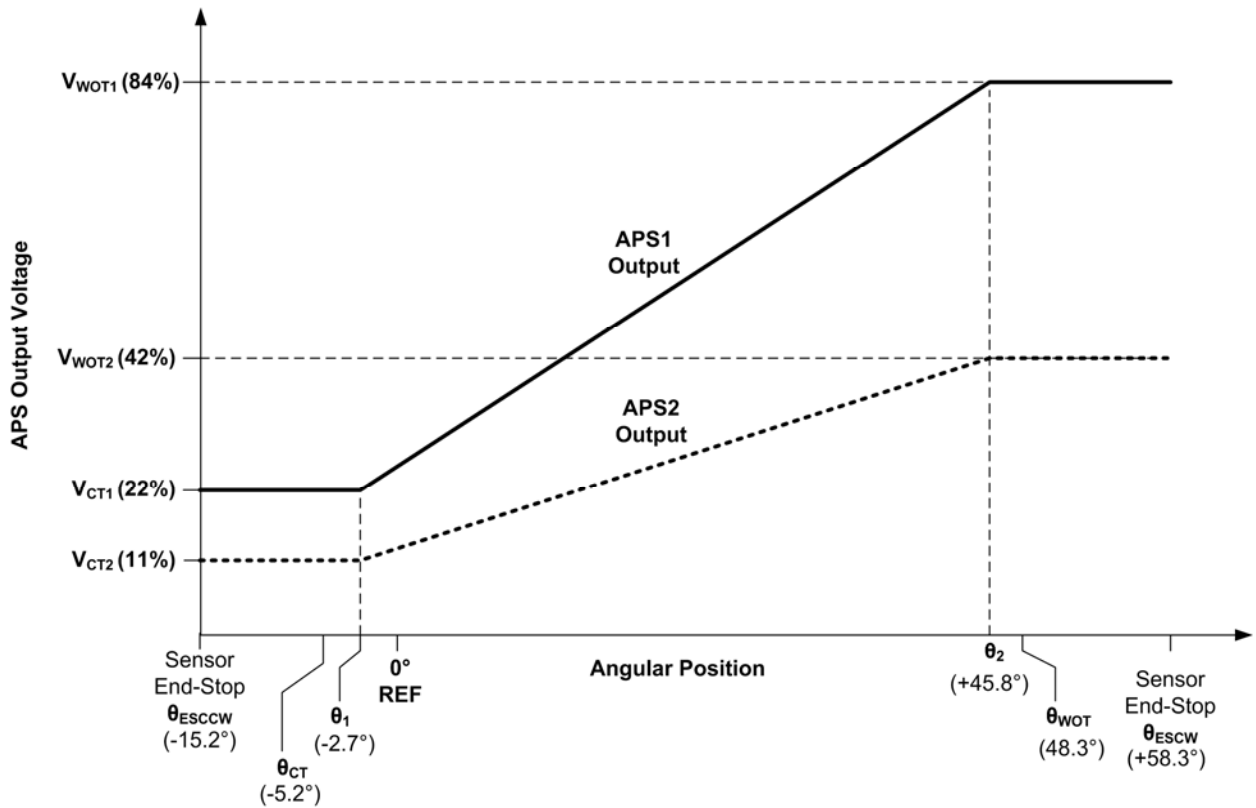
Environmental Validation**Pedal Validation**

- **Ultimate Strength**
With force vs. displacement plots
- **Side Load Deflection**
- **Full Stroke Endurance/Durability**
With continuously monitored electrical output
- **Thermal cycle**
SAE J1455 85C to -40C
- **Thermal Shock**
-40C to 85C
- **Humidity**
120 hour exposure at 95% humidity and 27C to 75C
- **Mechanical Vibration**
Swept sine resonant frequency search
- **Mechanical Vibration**
Random broadband 5-500 Hz, 4.0 G's
- **Salt Spray Exposure**
ASTM B-117 96 hr exposure
- **Dust Exposure**
24 Hr exposure, pedals cycled
- **Chemical Exposure**
Diesel, brake fluid, antifreeze, and plastic protectant exposure.
- **Pressure Wash**
250 psig detergent, 1000 psig water at 140F- 40 minute exposure, 0.05 rpm
- **Mechanical Shock**
SAE J1455: One meter drop to concrete with additional harness drop test.

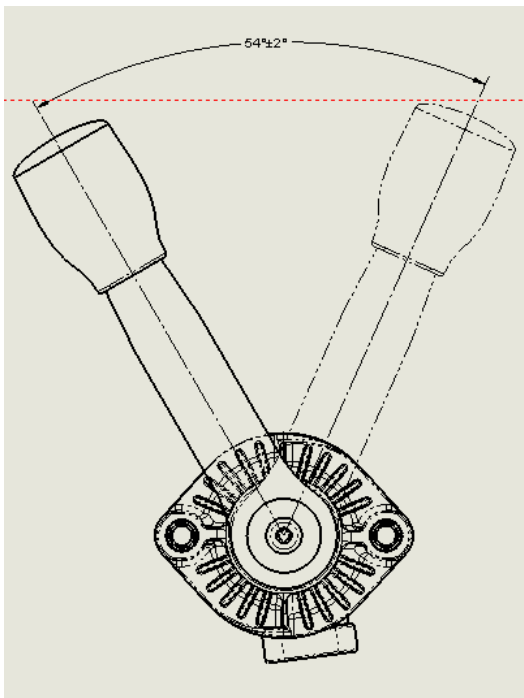
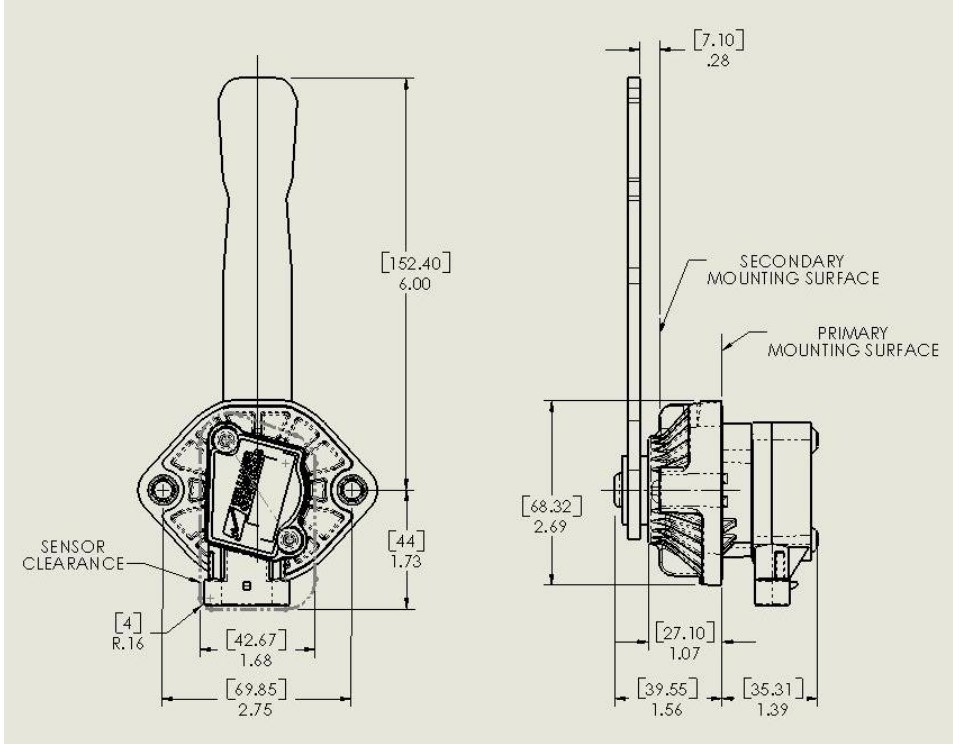
Sensor Validation

- **Endurance Cycling to 10 Million Cycles**
Sensors cycled over temperature, -40C to 85C; continuously monitored electrical output
- **Dither Testing**
Sensors cycled to 80 million cycles at 28 Hz with periodic monitoring
- **EMC Testing**
Sensors tested per SAE J1113 Class C for EMI

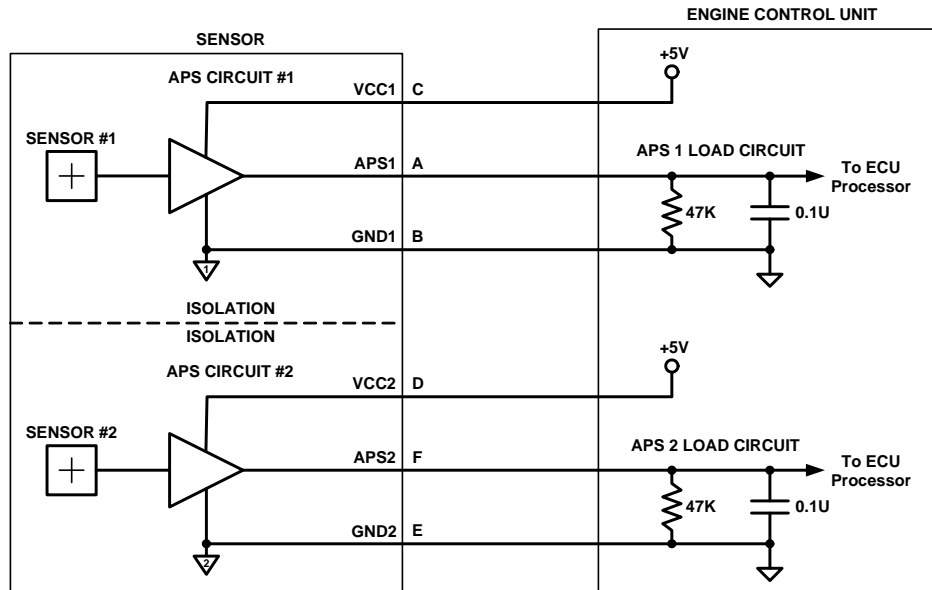
Typical Output Characteristics (For Sensor 134143)



Mechanical Dimensions and Characteristics (for reference only)



Applications Information:



Referenced Documents:

- Williams Controls DWG # 134512
- Williams Controls Specification # WDS-010B
- SAE J1113-1 – Electromagnetic Compatibility Measurement Procedures and Limits for Components of Vehicles, Boats, and Machines

Revision History

Rev	ECN No.	Date	By	Changes/Comments
-	--	11/13/06	RMS	Preliminary
A	000010	09/04/09	RMS	Release