daviteq

USER GUIDE
Fuel Level Sensor PulseCAP®10

Please read this user guide before installation or any further process with PulseCAP10

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NOTES

- The technicians who install sensors, must be graduated from college of mechanical or electrical.
- The mechanical installation staff (drill, cut, grind,..) must have skills in mechanical engineering.
- The electrical installation staff (connect,..) must have skills in electrical engineering.
- The technician must be trained before using.

SAFETY

- PulseCAP10 is intended to use with Diesel Oil, Vegetable Oils.
- PulseCAP10 will not be used with other flammable fluids such as Gasoline, Alcohol, Ethanol, Acetone, Toluene... or other solvents.
- Be carefull while drilling, cutting, grinding,.. the fuel tank or other flammable fluids ones.
- Daviteq is not responsilble for compensation in case of explosion, injury or death.

SPECIFICATION

Output	Frequency: 50..1050Hz, 5 Vp-p Pulse Width: 1.7 sec cycle, 5 Vp-p Analog: 1.00 .. 5.00 VDC RS232: Tx, DS Protocol, % Vp-p RS485: Modbus RTU
Power Supply	8..50VDC for output: analog, pulse, frequency and RS232 5..50VDC for output: Modbus RS485 Current Consumption: max 15mA
Pressure/ Temperature	Vaccuum…2barg /-40⁰C..+85⁰C
Sensor Material	Cast Aluminum, Thermal plastic
Performance	Output Linearity: +/- 0.5% of Span (at 25⁰C) Temperature drift: < + 0.03% of Span per 10⁰C
Electrical Connector	3-way connector, IP67 with 7m PVC cable, 3-core
Process Connection	4-bolt Flange
Accessories	4-bolt Flange, Rubber Gasket 4mm, Rubber Gasket 2mm, Flange seal cover, M4 hex bolt Connector cable
CERTIFICATE	CE-Marking; Standard: EN61236-1

- Standard length (mm):
  - 700
  - 1000
  - 1500
  - 2000
  - 2500
  - 3000
  - 3500
- Minimum length :   200 mm
- Maximum length :   3500mm

FULL PACKAGE

A complete set of PulseCAP10 includes the followings:
- 1 x Lock hex bolt 4mm (inside of flange)
- 1 x Cable with female connector (7m)
- 1 x Rubber gasket (4mm)
- 1 x Rubber gasket (2mm)
- 1 x Sensor head seal
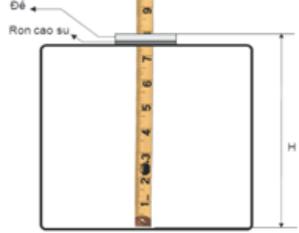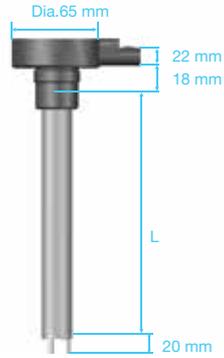- 4 x Inox rivet
- 1 x Flange
- 1 x Seal

NOTES BEFORE INSTALLATION

- Read specifications thoroughly and make sure that its output are suitable to reading devices.
- Power supply must be within the permitted range.
- Do not take out the label and take off the lid as this will lead to the instability of the sensor and manufacturer could deny warranty. (except cutting of sensor length within the allowed range).
- Make sure all the necessary tools are ready before the installation.

SENSOR INSTALLATION GUIDANCE

	Discription	Note
Step 1	**Remove fuel** Remove all fuel from the tank.	Some vehicles have been welded with oil filter at the mouth of the tank so it is necessary to take out the float level sensor in order to remove the fuel.
Step 2	**Clean the tank** - Remove or rotate the tank. For some vehicles, the cabin can be lifted; therefore, this step will be skipped. - Clean the tank.	Must clean the tank thoroughly
Step 3	**Central hole locating** Normally, the hole will be in the center of upper side. However, the float fuel sensor often be located in there; therefore the central hole can be moved to other places closest to the centre.	This step is very important as it will affect directly to the stablility of the fuel trending graph
Step 4	**Drilling the central hole:** - Use a 38 mm drill to drill the central hole and then use hand grinder to clean the wound. - Use a file to remove any burrs from the drilling	Before drilling, it is vital to check whether the hole is affected by the internal metal frame or obstacles at the bottom of the tank.
Step 5	**Drill 4 holes to install the sensor flange :** - Place the rubber gasket on the holes to mark 4 points at the bolt hole - Use a 4 - 4.5mm drill to make holes at those points.	Do not let the metal fragments fall into the fuel tank while drilling.
Step 6	**Flange installation:** - Place the rubber gasket (4mm) at the center of the tank's upper side - Place the flange onto the rubber gasket (4mm) - Use rivet tool to fasten the flange onto tank.	Unplug the river symmetrically.

Step 7	• Sensor cutting and Auto-recognization:
	After flange installation, measure the tank height as below picture:
	
	• Formula:
	C = L + 20 + 18 - H (mm)
	   C : Length to be cutted.
	   L : Length of the sensor
	   H : Height of the tank.
	
	• Example:
	Sensor length is L = 700mm, H = 650mm
	   ==> C = 88 mm
	   ==> cut the sensor tube a minimum length of 88 mm.
	
	NOTE: *In case there are sludge, grease, sand,.. in the fuel tank, we should cut 10mm more in length.*
	• Auto-recognization
	- After cutting, make sure the sensor tube is clean
	- Replug the bottom plug and tighten screw.
	- Turn on the sensor in at least 30 seconds in order for the sensor to auto-recognize its new length.	

Step 8 (Final)	- Place the rubber gasket (2mm) on the flange. Install the sensor into the threads of flange and turn it in clockwise direction. **NOTE:** Do not tighten the screw excessively - Use allen key to lock the hex bolt to protect the sensor unthreading during operation. - Connect the sensor with cable 7m through the connector. Use the sensor head seal to cover the sensor and then make the seal leading at the head seal and the connector seal the protect the sensor.	

WIRE CONNECTING INSTRUCTION

FOLLOW LABELS ON WIRES:
Each cable includes wires which mark types of connection accordingly to labels (user should not cut these labels before installation to avoid confusing).

FOLLOW WIRES COLOURS:
White   : PWR+ (8…50Vdc)
Blue   : PWR- (0Vdc)
Black   : output

PulseCAP®10 DISASSEMBLY GUIDANCE

PLEASE FOLLOW THE BELOW STEPS:
- **Step 1:** Cut the seal and open the sensor head seal
- **Step 2:** Remove the teminal connector
- **Step 3:** Use allen key to unlock the hex bolt.
- **Step 4:** Turn the sensor in counter-clockwise direction.

▶ *Notes:*
• In case, the sensor be tightened excessively , together with high temperature, and the O-ring be expanded by Diesel Oil .. you should cut out the O-ring in order to take out the sensor.

• Do not use locking pliers, pipe wrench-es,.. to twist the sensor as this cause damage the structure of the sensor such as cast aluminum, label, signal cables (connector), circuit board,.. and it will not be covered under warranty.

WARRANTY

Warranty is applied for PulseCAP10 fuel level sensor manufactured by Dai Viet Controls & Instrumentation Company Ltd (Daviteq)
PulseCAP10 fuel level sensor will be warranted for a period of eighteen (18) months from date of delivery

CHAPTER 1: FREE WARRANTY CONDITIONS
1. Manufacturer undertakes to guarantee within 18 months.
2. Product failed due to defects in material or workmanship.
3. Serial number, label, warranty stamp remains intact (not purged, detected, edited, scraped, tore, blurry, spotty or pasted on top by certain items)
4. During warranty period, if any problem of damage occurs due to technical manufacturing, please notify our Service Centre for free warranty consultancy. Unauthorized treatments and modifications are not allowed.
5. Product failed due to the defects from the manufacturer, depending on the actual situation, Daviteq will consider replacement or repairs.

▶ *Notes:*
One way shipping cost to the warranty centre shall be paid by Customers

CHAPTER 2: PAID WARRANTY
1. The warranty period has expired.
2. Product is not manufactured by Daviteq
3. Product failed due to damage caused by disasters such as fire, flood, lightning or explosion,..
4. Product damaged during shipment.
5. Product damaged due to faulty of installation, usage or power supply.
6. Product damaged caused by the customers.
7. Product rusted, stained by the effects of the environment or due to vandalism, liquids (acids, chemicals, ...).
8. Product damaged caused by unauthorized treatments and modifications.

▶ *Notes:*
Customers will be subjected to all repairing expenses and shipping costs.
If it arises disagreement with company's determining faults, both parties will have a third party inspection appraise such damage and its decision be and is final decision.

CHAPTER 3 : CONTACT
Dai Viet Controls & Instrumentation Ltd., Co (Daviteq)
No. 11, Street 2G, Nam Hung Vuong Area Res., An Lac Ward, Binh Tan Dist, Ho Chi Minh City, Vietnam
Tel : +84-8-6268.2523 (ext 109)
Fax: +84-8-6268.2520

Warranty service support is available from Monday to Friday (excluding Public Holidays as prescribed)
8:00 AM - 12:00 AM
1:30 PM- 5:00 PM

Hotline:
+84.906.885.858
Services Manager

WARNING: ANY INDIVIDUALS, ORGANIZATIONS CAUSES DAMAGE TO PRODUCT LEADING TO MATERIAL/PHYSICAL LOSSES, COMMERCIAL PRESTIGE/REPUTATION ON PURPOSE SHALL BE RESPONSIBLE FOR THE CIVIL, CRIMINAL LIABILITIES UNDER VIETNAMESE LAWS.

Daviteq sincerely thank you for entrusting and using products manufactured and provided by our company.