



PRODUCT SELECTION GUIDE

CNG & LPG Fuel System Sensors

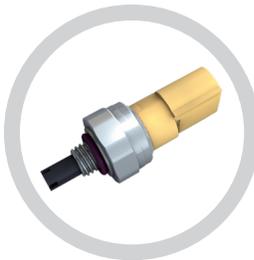
Introduction

Sensata Technologies is one of the world's leading suppliers of sensing, electrical protection, control and power management solutions across a broad array of industries and markets. Our products improve safety, efficiency and comfort for millions of people every day in automotive, appliance, aircraft, industrial, military, heavy vehicle, heating, air conditioning, data, telecommunications, recreational vehicle and marine applications.

Alternative fuels are playing a bigger role in engine design, and create some unique challenges for engine control systems. Compressed Natural Gas (CNG) and Liquefied Petroleum Gas (LPG) engines and its infrastructure are steadily gaining position around the world. They offer improved fuel diversity and emissions benefits - not to mention tax and mobility incentives in some areas.

Sensata Technologies has hundreds of millions of pressure sensors in the field today. Most are in harsh automotive applications. We have experience in CNG and LPG powered cars, trucks, buses and forklifts for years. Whether low pressure for the fuel rail, high pressure for tank pressure, or even combined pressure + temperature, Sensata has a wide, proven portfolio. Our CNG and LPG products meet regulations set by the International Organization for Standardization (ISO) as well as by the United Nations Economic Commission for Europe (UN ECE) and bear these organizations' approval marks and certification numbers. More than 65 countries worldwide have adopted ISO 15500 and UN ECE R110 for CNG and R67 for LPG.

Sensata Technologies' products are developed together with OEMs to the highest performance requirements and made to the highest quality standards.



Compressed Natural Gas (CNG)

Typical Application

Product Family

- Fuel Rail PressureCP Series
- Fuel Rail Pressure and TemperatureCP+T Series
- Regulator/ Tank Valve PressurePP Series

Liquefied Petroleum Gas (LPG)

Typical Application

Product Family

- Fuel Rail PressureCP Series
- Fuel Rail Pressure and TemperatureCP+T Series
- Regulator/ Tank Valve PressureCP Series
- Regulator Pressure and TemperatureCP+T Series

The Fuel Rail sensor measures the absolute pressure of the fuel at the inlet of the injectors to optimize fuel metering and to control combustion for improved emissions and engine performance. Whether CNG or LPG, it is conventional to measure both pressure and temperature, and the CP+T package combines both readings in one convenient robust package.

The pressure measurement from the Regulator or Tank Valve application is used to calculate the amount of fuel in the tank for dashboard fuel gauge indication. It replaces more traditional electro-mechanical devices and its accuracy can even help to detect possible leakage in high pressure CNG systems.

SENSATA PRODUCT FAMILIES

Family	Parameter (Technology)	Typical Specifications	Typical Applications
CP	Pressure (Ceramic capacitive)	0-100 kPa to 0-10 MPa abs or rel 5 V in / 0.5-4.5 V out (other I/O available) Accuracy* +/-0.75% to +/-1.2% EMC 100 V/m, ESD 15 kV Overvoltage & Reverse polarity protection Various electrical connections Various screw threads and sealing concepts ISO 15500, ECE-R110 (CNG) approved versions	CNG/ LPG fuel rail LPG regulator Air Conditioning and refrigeration Hydraulics and pneumatics Engine control Transmission
CP+T	Pressure and Temperature (Ceramic capacitive with NTC thermistor)	50-450 kPa to 100-4000 kPa abs 5 V in / 0.5-4.5 V out Accuracy* +/-1.2 % EMC 100 V/m, ESD 8 kV Overvoltage & Reverse polarity protection 10 kΩ at 25°C NTC AMP Micro Quad Lock System (MQS) 4 pin connector Various male screw threads with O-ring sealing ISO 15500, ECE-R110 and ECE-R67 approved versions	CNG/ LPG fuel rail LPG regulator Air Conditioning and refrigeration Engine control
PP	Pressure (Piezo resistive)	0-3500 kPa to 0-220 MPa rel Stainless steel front end, hermetic 5 V in / 0.5-4.5 V out Accuracy* +/-1.1 % to +/-1.3 % EMC 200 V/m, ESD 8 kV Vibration 20 to 60 g sine Overvoltage & Reverse polarity protection Various electrical connections Various male screw threads and sealing concepts ISO 15500 and ECE-R110 approved versions	CNG regulator/ tank valve Air Conditioning and refrigeration Diesel Common rail Vehicle stability control Transmission Hydraulics Brake

* Static error band at 25°C including linearity, hysteresis and repeatability

www.sensata.com

North America

Sensata Technologies Inc.
529 Pleasant Street
Attleboro, MA 02703-0964 USA
1-888-438-2214
sensors@sensata.com

Japan

Sensata Technologies Japan Ltd.
Sumito Fudosan
Nishi-Shinjuku Bldg.
8-15-17 Nishi-Shinjuku, Shinjuku-ku
TOKYO 160-0023, Japan
+ 81 (3) 53 38 10 03

Korea

Sensata Technologies Korea Ltd.
29F, Trade Tower, 159-1
SamSung-Dong, KangNam-Nu
SEOUL 135-729
Republic of Korea
+82 (2) 5512964

South America

Sensata Technologies Sensores
Controles Do Brasil Ltda
Rua Azarias de Melo #648 - Taquaral
CAMPINAS - SP Brazil
+ 55 (19) 37 54 11 11

Europe

Sensata Technologies Holland B.V.
Kolthofsingel 8
7602 EM ALMELO
The Netherlands
+ 31 (546) 87 95 55

China

Sensata Technologies China Co., Ltd
Novel Plaza, 8th Floor
128 Nanjing Road West
SHANGHAI 20003
People's of China
+86 (2) 1 2306 1587



The World Depends on Sensors and Controls

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