

# Diesel Nitrogen Oxide (NOx) Sensors



## A High-Failure Part That's Required for Emissions Regulations

- NOx sensors monitor the level of nitrogen oxide being emitted by a diesel vehicle to ensure compliance with emissions regulations
- Most engines feature two NOx sensors: an upstream and downstream sensor
- Common causes of failure include soot buildup on the sensor, ECU water intrusion, and/or damage to the cable, which will cause the check engine light to illuminate

**NOX1001** - DownstreamChevrolet & GMC Trucks w/  
8 Cyl. 6.6L Engines (2014-10)**NOX1002** - UpstreamChevrolet & GMC Trucks w/  
8 Cyl. 6.6L Engines (2014-10)

## Related Parts for GM 6.6L Engines

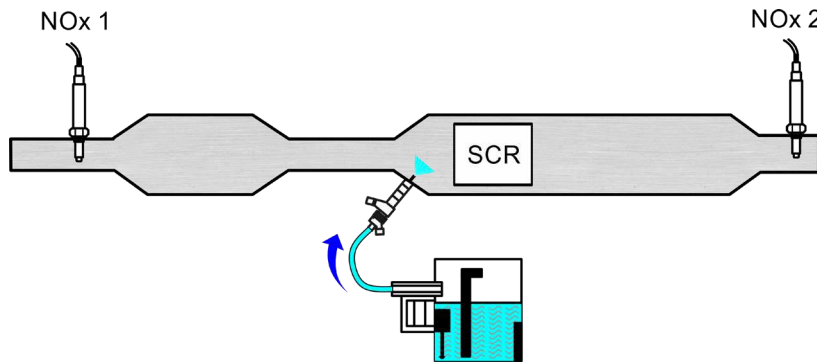
Our NOx Sensor line is the latest addition to our comprehensive diesel program. Here are just a few related part categories for the NOx Sensors on the 6.6L Duramax engine.

**DEF2**Diesel Emissions  
Fluid Pump**DEF2**Diesel Emission  
Fluid Injection Nozzle**DES1**Diesel Emissions Fluid  
Temperature Sensor**EGR514**Exhaust Gas  
Temperature Sensor

## **i** About NOx Sensors

Below is a diagram of a generic Selective Catalytic Reduction (SCR) system used on light-duty diesel passenger trucks. The assembly uses two NOx sensors:

**NOx sensor 1**  
measures  
engine out NOx



**NOx sensor 2**  
measures NOx  
levels exiting the  
SCR catalyst

The SCR assembly contains a catalyst brick that requires DEF, or diesel exhaust fluid, for activation. A PCM controlled pump and doser valve are used to meter DEF into the exhaust system upstream of the SCR brick. With the exhaust heat, the DEF will decompose into ammonia and carbon dioxide.

If too much DEF is injected into the exhaust, the SCR brick can become saturated with ammonia and some of it will exit the SCR assembly. This is called “ammonia slip”. Ammonia and NOx look the same to a NOx sensor. Ammonia slip will cause the downstream NOx sensor to report an incorrect amount of NOx in the exhaust stream.

## Is the NOx sensor reporting NOx levels correctly?

While addressing SCR codes concerning DEF quality, NOx sensor failure, or SCR efficiency, it may be necessary to “burn out” saturated SCR bricks and run the onboard diagnostic again. This can be accomplished by performing a manual DPF regen. The heat produced during the manual regen will remove ammonia from the SCR bricks and allow for a more accurate onboard SCR system diagnostic.



## NOx Sensor Repair Tips

- A degraded doser valve (DEF injector) may set NOx DTCs
- Be sure to test the doser valve before replacing NOx sensors
- After replacing a NOx sensor, be sure to check service information for any reset procedures
- NOx sensors can't tell the difference between NOx and ammonia
- Performing a DPF regen will release ammonia from the SCR catalyst