

Data Instance (Add to Appendix C)

Does the DUT use the source address of a device as the first qualifier when receiving many of the same PGNs containing data instance on the NMEA 2000 network? Yes = Pass No = Fail

Does the DUT require the data instance to be unique on the bus? Yes = Fail No = Pass

If the DUT receives two PGNs of the same type with data instance of zero (0) in each of the PGNs from different devices will the DUT display this properly? Yes = Pass No = Fail

Will the DUT reject data instances not unique on the bus? Yes = Fail No= Pass

Will the DUT accept data instance that are duplicated on the bus? Yes = Pass No= Fail

PGN 127505 Fluid Level Tank Monitor 1 Source Address 12 Fluid instance = 0 Fluid Type = 0 (Fuel)	PGN 127505 Fluid Level Tank Monitor 2 Source Address 20 Fluid instance = 0 Fluid Type = 1 (fresh water)
PGN 127505 Fluid Level Tank Monitor 1 Source Address 12 Fluid instance = 1 Fluid Type = 0 (Fuel)	PGN 127505 Fluid Level Tank Monitor 2 Source Address 20 Fluid instance = 1 Fluid Type = 2 (waste water)
PGN 127505 Fluid Level Tank Monitor 1 Source Address 12 Fluid instance = 2 Fluid Type = 1 (fresh Water)	PGN 127505 Fluid Level Tank Monitor 2 Source Address 20 Fluid instance = 2 Fluid Type = 0 (fuel)

Example:

Data instances within a PGN are only unique to the device that generates and transmits the PGN. Data instances are not unique on the bus. The table of PGNs above provides an example of typical PGNs with data instance values that are properly configured, unique to the device that generates the PGN. The data instance field in PGN 127505 is defined as Fluid Instance. PGN 127505 is being transmitted from two different tank monitors with two different source addresses (SA 12 and SA 20). The fluid instance values reported by tank monitor 1 are independent of those reported by tank monitor 2.

Though the same fluid instance values are being reported by the different source addresses, each PGN transmission includes the source address of where it originated, thus there is no conflict with similar fluid

instance values. The combination of source address and fluid instance uniquely identifies each of these PGNs on the bus.

If the receiving device *does not* maintain a NAME to address table, each time the PGN of interest is received the source address must be validated to the NAME to assure it is the desired PGN. This method will work even if the source address on the sending device changes.

If the receiving device *does* maintain a NAME to address table, then the receiving device can compare the received PGN's source address in the table. If the device that generated the PGN is forced to claim a new address, the NMEA to Address Table should be updated by the receiving device allowing easy validation of the received PGN's origin.

Products that *do* maintain and utilize the source address to name relationship will work with widest range of disparate products on any NMEA 2000 bus. Products that *do not* maintain and utilize the source address to name relationship will by design be limited in their scope and application.