

## SPECIFICATIONS

### *CANopen encoder and inclinometer profiles on J1939*

CAN in Automation (CiA), the nonprofit international association, has released the CiA 406-J and CiA 410-J specifications. They describe the adaptation of the CANopen encoder and inclinometer profiles for J1939-based networks.



*(Source: Adobe Stock)*

Many suppliers provide encoders and inclinometers with CANopen connectivity. To make these products also available for J1939 users, CiA has requested appropriate PGNs (parameter group numbers) from SAE International to map the CANopen PDOs to J1939 PGs. In order to configure such sensors, CiA has released the CiA 510 document, which specifies a mapping of CANopen SDO messages to two PGNs. Additionally a mapping of CANopen EMCY messages to a dedicated PG has been introduced.

“With these CiA specifications it is very simple to adapt already approved encoders and inclinometers to J1939-based networks,” explained Holger Zeltwanger, CiA Managing Director. “In the past, the adaptation has been implemented manufacturer-specific, which resulted in not exchangeable proprietary solutions.” Especially, the CiA 510 specification enables the suppliers of J1939 products to use the same configuration as used by their CANopen devices.

The J1939-SDOs features expedited (4 byte) as well as segmented (more than 4 byte) configuration parameter transmissions. “J1939 devices implement a virtual CANopen object dictionary, which can be accessed via the CAM11 and CAM21 parameter groups,” added Zeltwanger. “They implement the SDO services.”

[CW](#)