CAN *Newsletter Online*

HANNOVER MESSE 2022

CANopen for integrated stepper motors

JVL (Denmark), producer in the field of integrated servo and stepper motors, is announcing an improved implementation of the CANopen protocol for responder operation. All motor functions are available in CANopen through gateway objects with selectable data rate up to 1 Mbit/s.

*Series of CANopen stepper motors (Source: JVL)*

Monitoring and debugging features with the company's Mactalk software are provided. CANopen over Mactalk is also possible. Configuration from PLC (programmable logic controller) is enabled through JVL CAN explorer. The company shows its products at the Hannover Messe 2022 (Germany) in hall 6 booth C21/1 from May 30 to June 2.

The CANopen profiles CiA 301 application layer and communication profile and CiA 402 device profile for drives and motion control are supported. Read and write access to all 512 motor registers as well as up to 24 programmable TX PDO and 24 programmable RX PDO are provided. Other features include: ≥ 5 kHz asynchronous PDO update with default mapping, ≤ 2 ms interpolation synchronization, EDS (electronic data sheet), CANopen as NC axis in Twincat - step by step Twincat 3 setup guide.

Other CAN features

The company has developed another feature for Servostep motors running CAN: the "Follower-mode". With this mode, users don't need an external commander – they can use one of the motors as commander and the other motors as responders (the responders called "follower" performs the commands). Up to eight motors can run synchronized. This mode doesn't follow the CANopen standard.
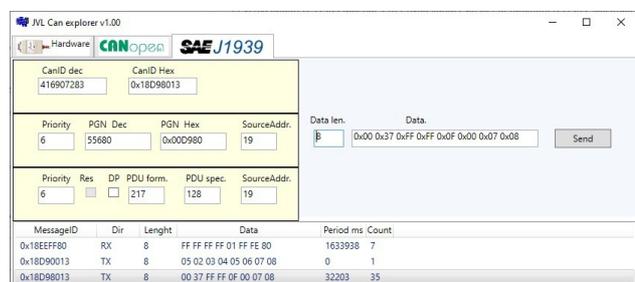
Screen example from the JVL CAN explorer software (Source: JVL)

Firmware update

The MIS motor range MIS17/23/34/43 and stepper motor controller SMC66/85 now have an updated firmware including CiA 402 where sync, interpolated position mode is supported. The company now supports commander-responder synchronization without external PLC. The feature will let users set up applications like lifting a load in four corners. Mactalk is used to program the commander motor. Users can connect up to 29 responders. The commander automatically finds the responders on the network, and the commander automatically and configures them. A primary benefit is the speedy setup time, explained the company. For control, a JVL HMI (human-machine interface) can be added to the commander motor. The commander-responder feature is supported by all MIS Integrated Servostep motors with CANopen. All motor functions are available in CANopen through CiA 301 gateway objects. Configuration and test of SDO and PDO from PC are enabled through CAN explorer. Profile position mode, velocity mode, homing mode, and interpolated position mode are supported. A non-CAN standard commander-responder follow motor where up to 30 motors can run synchronized is available.

The MIS motor range 23 (Source: JVL)

Servostep motors

JVL's integrated stepper motors have built-in: high torque motor, incremental or absolute multiturn encoder, driver electronics, controller electronics with ePLC (with 8 DIO, 24 V or 0 V to 5 V (12 bit) analog input with filtering) and EIA-485 communication. Also included are eight I/O points which can be individually configured as digital input, digital output, or analog input. The CANopen circuit include transceiver hardware and two M12 connectors for daisy-chaining of cables from motor to motor.

Motor features: Size range from Nema 17 to Nema 43 with holding torques of 0,18 Nm to 25 Nm, closed-loop control, energy efficient due to automatic current control, speed-resolution down to ±0,01 rotations per minute, change speed or torque or other parameters "on-the-fly" (while driving). Top or rear-end mounted M12 connectors or Option M23 hybrid connector are provided.

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