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Subject: Lexium 05 A CANopen compatibility

Application Note

Introduction:

Brief review of the CANopen specification for the Lexium 05 A CANopen drive. Refer to Document: 0198441113235

Edition: V1.03, 09.2005

Published by Telemecanique.

Bus connection and speed:

- The document does not describe the physical connection (connector type and pin-out) to the drive.
- The baud rate is pre-set to 125k and this must be changed using the appropriate Telemecanique software. Set the CANbus baud rate to 1000k. This rate is not mentioned in the document, but the EDS file indicates that 1000k (1MHz) is possible.
- Use the Telemecanique software to set up the Node Address.

Trio compatible services:

The drive supports SDO transfers and it can be controlled in a non-synchronous way by sending SDO commands from a Trio BASIC program.

For synchronous operation as a Trio Axis, the drive must support freely programmable mapping of at least one PDO. The PDO transmission type must be settable to Cyclic and Synchronous. The following table is a summary of the PDOs available in the Lexium drive.

PDO Support:

PDO #	Cyclic+sync?	Fixed Mapping	Progr. Mapping?	Remarks
PDO1 Rx	Yes	Control Word 6040h	No	
PDO2 Rx	??	Control Word 6040h Position Word 607Ah	No	
PDO3 Rx	??	Control Word 6040h Target Velocity 60FFh	No	
PDO4 Rx	No (type 254)	None	Yes	Fixed transmission type is asynchronous and event-driven.
PDO1 Tx	No	Status Word 6041h	No	
PDO2 Tx	No	Status Word 6041h Position Value 6064h	No	
PDO3 Tx	No	Status Word 6041h Speed Value 606Ch	No	
PDO4 Tx	No (type 254)	None	Yes	Fixed transmission type is asynchronous and event-driven.

It can be seen that only PDO4 is able to be mapped as required. However it cannot be set to Cyclic and Synchronous (Transmission type 1) so therefore the drive will not communicate to the Trio Motion Coordinator over PDO.

Supported DP402 Modes:

The Lexium drive supports the following modes;

Standardised operating modes The unit operates in 3 standardised operating modes. They can be started and monitored with the objects of the CANopen device profile DSP 402.

- Profile position
- Profile velocity
- Homing

Manufacturer-specific operating modes

The unit operates in 4 manufacturer-specific operating modes. They use all the functions of the unit. The operating modes are started and monitored with manufacturer-specific objects.

- Current control
- Speed control
- Electronic gear
- Jog

The only mode which may be compatible with the Trio Motion Coordinator is the Manufacturer-Specific mode "Speed Control". An example of how to set up this mode is on page 6-9 of the document. It shows the mapping of speed command to manufacturer specific parameter 3021h and the mapping of the

feedback to parameter 6064h which is position actual value. The mode (Index 6060h) is set to -4 which is the manufacturer specific mode that Telemecanique have allocated to speed mode.

Although the Trio Motion Coordinator will be able to control the speed of the drive in real-time, the feedback is not cyclic so will only be transmitted on change of position. This will generate an error in the Motion Coordinator and the AXISSTATUS will cause a global Motion Error and stop all axes.

Conclusion:

The Lexium drive will not operate with the Trio Motion Coordinator as a synchronously controlled axis over CANbus.

Report prepared by Geoff Dixon, Applications and Technical Support Manager.
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