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CANOpen PDO Slave Communications Driver

Information Sheet for Crimson v3.0+

Compatibility

CANOpen networks based on CiA 301 version 4.02.

Requirements

A Red Lion CAN option card (G3CN, XCCN) is mandatory in using the CANOpen PDO Slave communications driver.

Overview

The CANOpen PDO Slave driver is designed to work with a CANOpen Master device and will comprehend any SDO communications associated with the configuration of PDO types and events as applicable. Node Guarding is supported when enabled in Crimson 3.0+'s driver configuration.

Accessing Data

Within the Communications category of Crimson v3.0+, select the root of the G3 tree. Upon selection of the CAN Option Card, the CANOpen PDO Slave driver can then be selected in the CAN Interface element of the tree.

For each PDO to be defined, add a Gateway Block to the PDO slave device shown in the Communications category.

PDO's can then be constructed via the PDO Configurator dialog box, found by clicking on the Start Address's edit button within the Block Settings. The PDO Configurator allows selection of Object Dictionary access for transmit PDO's (TPDO) and receive PDO's (RPDO) which the programmer may base upon a specific device profile. It also allows the versatility to meet the requirements of specialized applications.

The PDO Configurator allows 4 TPDO's and 4 RPDO's to be configured. The PDO Number coupled with the PDO Slave's Drop Number (Node-ID) defines the target COB-ID as indicated in the following table.

PDO	COB-ID	Resulting COB-ID Range
TPDO 1	0x180 + Node-ID	0x181 – 0x1FF
RPDO 1	0x200 + Node-ID	0x201 – 0x27F
TPDO 2	0x280 + Node-ID	0x281 – 0x2FF
RPDO 2	0x300 + Node-ID	0x301 – 0x37F
TPDO 3	0x380 + Node-ID	0x381 – 0x3FF
RPDO 3	0x400 + Node-ID	0x401 – 0x47F
TPDO 4	0x480 + Node-ID	0x481 – 0x4FF
RPDO 4	0x500 + Node-ID	0x501 – 0x57F

Elements should be added to the PDO via the PDO Configurator as required in the application. PDO element number entry is provided for user convenience and notation purposes and is not a requirement. Size, however, is a crucial aspect of the PDO configuration. Note that each PDO is limited to 8 bytes of data.

Once the PDO has been defined, be sure to set the Block Size and Block Direction consistent with the PDO definition. The Block Size should be set to the number of elements in the PDO. Since PDO's are designated from the Red Lion device's perspective, TPDO's should be set to the direction of G3 to Device, likewise RPDO's should be set to the direction of Device to G3. Tags can then be mapped to each PDO parameter.

Manual TPDO Events (v1.02+)

This feature is useful when the CANOpen Master is not configured or is not capable of setting the TPDO event details. Manual Events may be configured for TPDO's only in the PDO Configurator. Select "Yes" for the Manual Event field then enter the desired interval (in milliseconds) in the Event Timer field. A value of 0 in the Event Timer field will result in TPDO's being sent on change of value only.

NOTE: The Red Lion device must be in the Operational State in order to send TPDO's. If the CANOpen Master is not configured or is not capable of setting the Red Lion device in the operational state, select "Yes" for the Begin in the Operational State field found in the PDO Slave Driver Settings in Crimson.

Cable Information
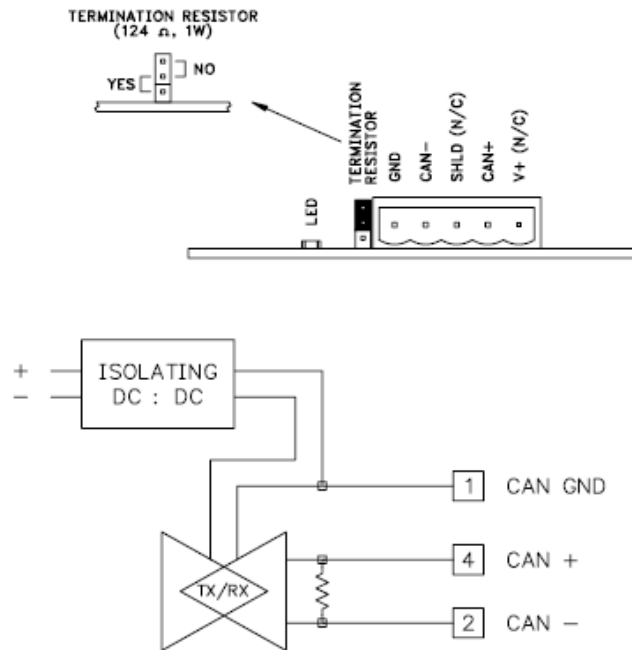
Revision History
08/29/12 – Created.
01/08/15 – Added Manual TPDO Events.