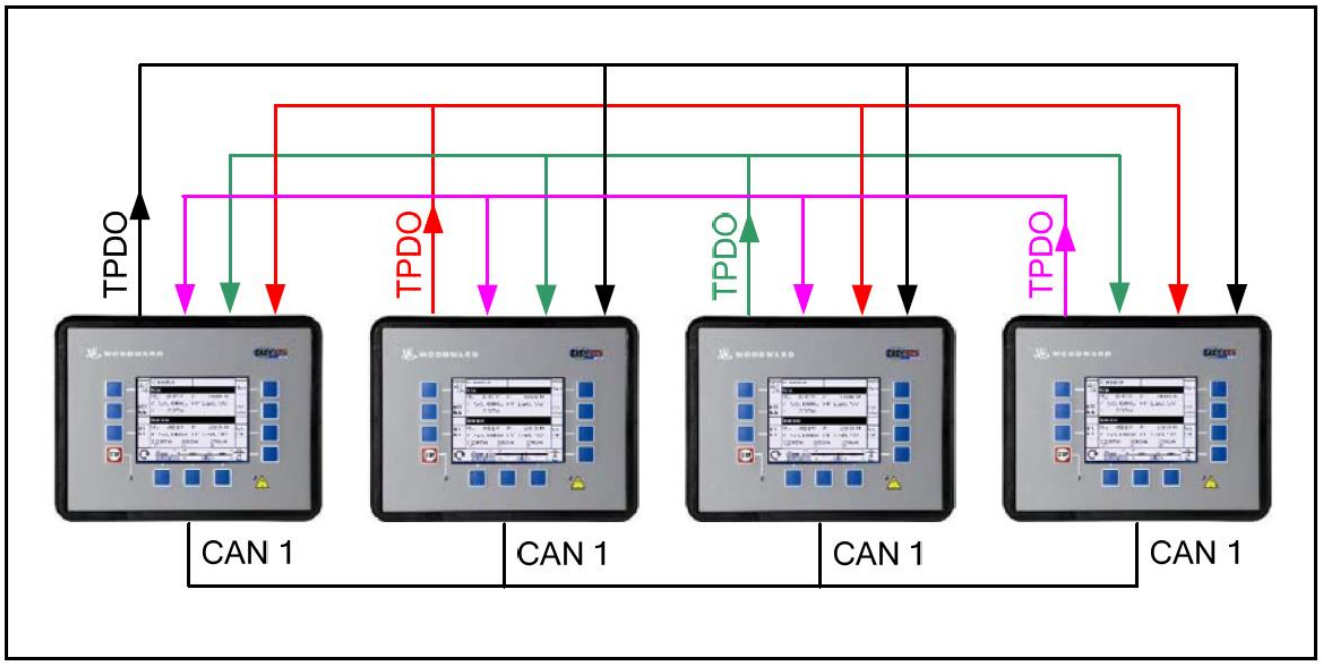
APPLICATION NOTE

#37578, 10/2014



easYgen-3100/3200-P2 or easYgen-3400/3500-P1

‘Distributing a binary information over CAN1 bus using the CANopen PDO system’

Optional Supplementary Information

General Information

The following alert boxes can be used in this publication:

DANGER **"DANGER" indicates a hazardous situation which, if not avoided, will result in death or serious injury.**

WARNING **"WARNING" indicates a hazardous situation which, if not avoided, could result in death or serious injury.**

CAUTION **"CAUTION", used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.**

NOTICE **"NOTICE" is used to address practices not related to personal injury.**

IMPORTANT **"IMPORTANT" is used to address practices not related to personal injury.**

Personnel

WARNING

WARNING!
Hazards due to insufficiently qualified personnel!

If unqualified personnel perform work on or with the control unit hazards may arise which can cause serious injury and substantial damage to property.

- **Therefore, all work must only be carried out by appropriately qualified personnel.**

For further Product Support Options, Product Service Options, Returning Equipment for Repair, and/or Engineering Services please download application note #37573.

Requirements

Up to four easYgen-3100/3200-P2 and/or easYgen-3400/3500-P1, no IKD expansion boards.

Documentation

⚠WARNING

Read this entire application note and all other publications pertaining to the work to be performed before installing, operating, or servicing this equipment. Practice all plant and safety instructions and precautions.
Failure to follow instructions can cause personal injury and/or property damage!

Any unauthorized modifications to or use of this equipment outside its specified mechanical, electrical, or other operating limits may cause personal injury and/or property damage, including damage to the equipment.
Any such unauthorized modifications: constitute "misuse" and/or "negligence" within the meaning of the product warranty thereby excluding warranty coverage for any resulting damage, and invalidate product certifications or listings.

⚠CAUTION

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Introduction

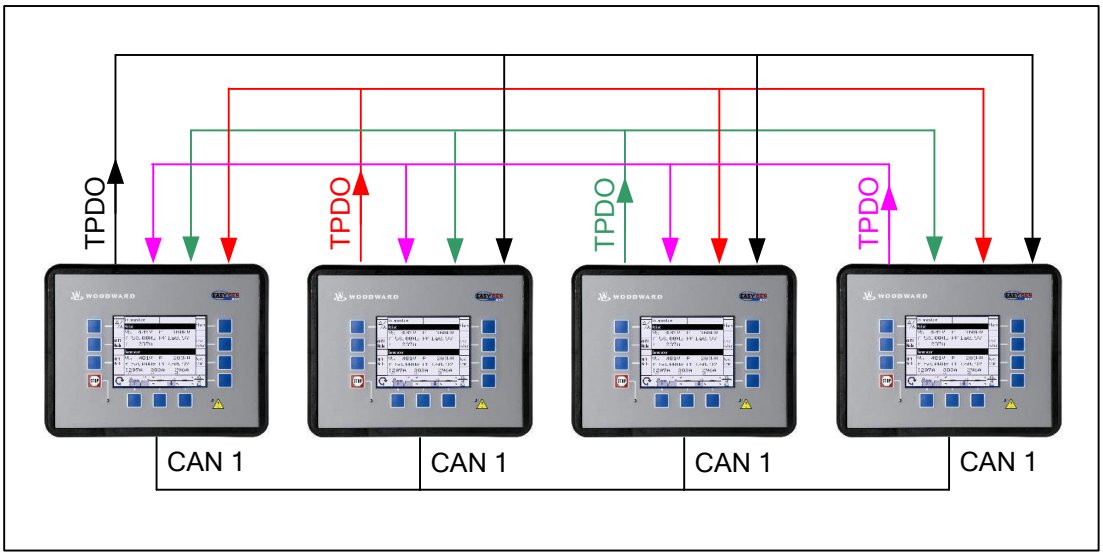
This application note describes the communication between easYgen-3100/3200-P2 and/or 3400/3500-P1 **using up to 4 IKD expansion boards virtually** instead of real hardware.

Table of Contents

Distributing a binary information over CAN1 bus using the CANopen PDO system

Description

The easYgen-3100/3200-P2 and 3400/3500-P1 can be equipped with 4 IKDs. As long these expansion boards are **not used** in all easYgens they can be taken virtually. The idea is that each easYgen is sending one TPDO message with the contents of the Data protocol 65000, this relates to IKD1 (external discrete outputs 1..8). Important here is that each easYgen sends its TPDO message with an own COB-ID. On the other side all easYgens receiving these three TPDOs and loading the contents on its three virtual IKDs (external inputs).



Example: Distribute binary information over CAN1 bus

Definition of external discrete outputs

External Digital Output	simulating	using
Ext. DO 1..8	IKD1	Data protocol 65000
Ext. DO 9..16	IKD2	Data protocol 65001
Ext. DO 17..24	IKD3	Data protocol 65002
Ext. DO 25..32	IKD4	Data protocol 65003

Definition of external discrete inputs

External Digital Output	simulating	using
Ext. DI 1..8	IKD1	Data protocol 65000
Ext. DI 9..16	IKD2	Data protocol 65001
Ext. DI 17..24	IKD3	Data protocol 65002
Ext. DI 25..32	IKD4	Data protocol 65003

The Procedure

1. All easYgen using the **external DO1** to distribute the information. LogicsManager equation 12330

Device	LogicsManager 12330	Node-ID CAN 1 (CANopen Master = default)
easYgen 1	Ext. DO 1	1
easYgen 2	Ext. DO 1	2
easYgen 3	Ext. DO 1	3
easYgen 4	Ext. DO 1	4

2. Configure the TPDO1 at all easYgens:

Device	Transmit PDO	COB-ID	Transmission type	Event timer	Selected Data Protocol
easYgen 1	Transmit PDO 1	201hex	255	20ms	65000
easYgen 2	Transmit PDO 1	202hex	255	20ms	65000
easYgen 3	Transmit PDO 1	203hex	255	20ms	65000
easYgen 4	Transmit PDO 1	204hex	255	20ms	65000

3. Configure the RPDOs at all easYgens:

Device	Receive PDO	COB-ID	Event timer	Selected Data Protocol
easYgen 1	Receive PDO 1	-	-	-
	Receive PDO 2	202hex	2000ms	65001
	Receive PDO 3	203hex	2000ms	65002
	Receive PDO 4	204hex	2000ms	65003

Device	Receive PDO	COB-ID	Event timer	Selected Data Protocol
easYgen 2	Receive PDO 1	201hex	2000ms	65000
	Receive PDO 2	-	-	-
	Receive PDO 3	203hex	2000ms	65002
	Receive PDO 4	204hex	2000ms	65003

Device	Receive PDO	COB-ID	Event timer	Selected Data Protocol
easYgen 3	Receive PDO 1	201hex	2000ms	65000
	Receive PDO 2	202hex	2000ms	65001
	Receive PDO 3	-	-	-
	Receive PDO 4	204hex	2000ms	65003

Device	Receive PDO	COB-ID	Event timer	Selected Data Protocol
easYgen 4	Receive PDO 1	201hex	2000ms	65000
	Receive PDO 2	202hex	2000ms	65001
	Receive PDO 3	203hex	2000ms	65002
	Receive PDO 4	-	-	-

4. Reading in the following **external DIs**:

Device	easYgen 1	easYgen 2	easYgen 3	easYgen 4
easYgen 1	-	Ext. DI 9	Ext. DI 17	Ext. DI 25
easYgen 2	Ext. DI 1	-	Ext. DI 17	Ext. DI 25
easYgen 3	Ext. DI 1	Ext. DI 9	-	Ext. DI 25
easYgen 4	Ext. DI 1	Ext. DI 9	Ext. DI 17	-

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