CiA® 808

Application note

CiA® 444 implementation guideline

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HISTORY

Date	Changes
2007-02-09	*Publication of version 1.0 as* application note
	NOTE: This document has been converted into “docx format”. The conversion caused minor layout differences to the predecessor document in “doc format”. The technical content word-by-word is the very same.

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CONTENTS

1 Scope

This application note describes the recommended practice and gives application hints for implementing the connection of crane and spreader.

2 Normative references

/ISO11898-2/ ISO 11898-2: Road vehicles – Controller area network (CAN) – Part 2: High-speed medium access unit

3 Definitions

new crane
crane with a CANopen interface

new spreader
spreader with a CANopen interface

old crane
crane without a CANopen interface

old spreader
spreader without a CANopen interface

The definitions given /ISO11898-2/ apply to this application note, too.

4 General introduction

Goal of this application note is to explain the different ways to physically connect spreader (or other crane add-on devices) to a crane with or without CANopen interfaces. It is intended for system designers.

Both, crane and spreader may be direct wired or equipped with a CANopen interface. In the normal application of a crane it is possible to have different spreaders attached to different cranes. The four possible configurations are:

- CAN connection between a new crane and a new spreader
- CAN or direct-wired connection between an old crane and a new spreader
- CAN or direct-wired connection between a new crane and an old spreader
- Direct-wired connection between an old crane and an old spreader

5 CAN connection between a new crane and a new spreader

CAN connection between a new crane and a new spreader may be performed as shown in Figure 1.

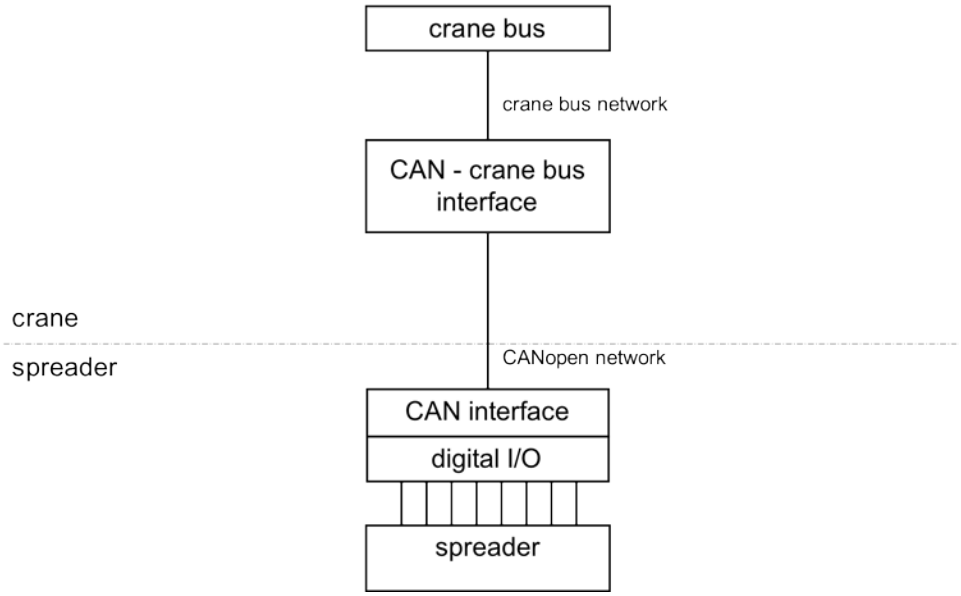

Figure 1 – CAN connection between a new crane and a new spreader

6 CAN or direct-wired connection between an old crane and a new spreader

The CAN or direct-wired connection between an old crane and a new spreader may be retrofitted as shown in Figure 2.

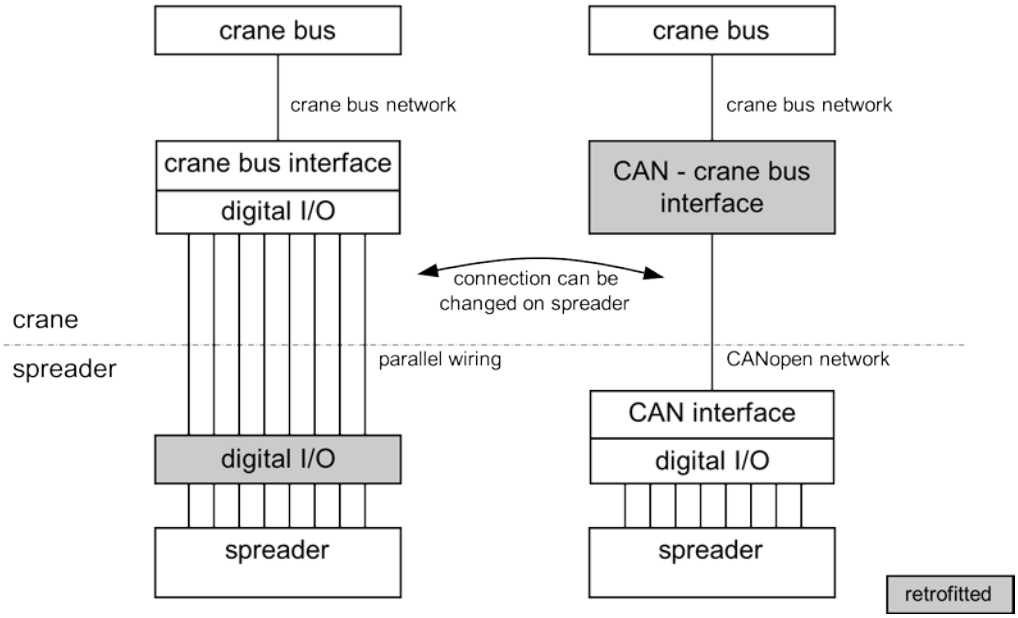

Figure 2 – CAN or direct-wired connection between an old crane and a new spreader

7 CAN or direct-wired connection between a new crane and an old spreader

The CAN or direct-wired connection between a new crane and an old spreader may be retrofitted as shown in Figure 3.

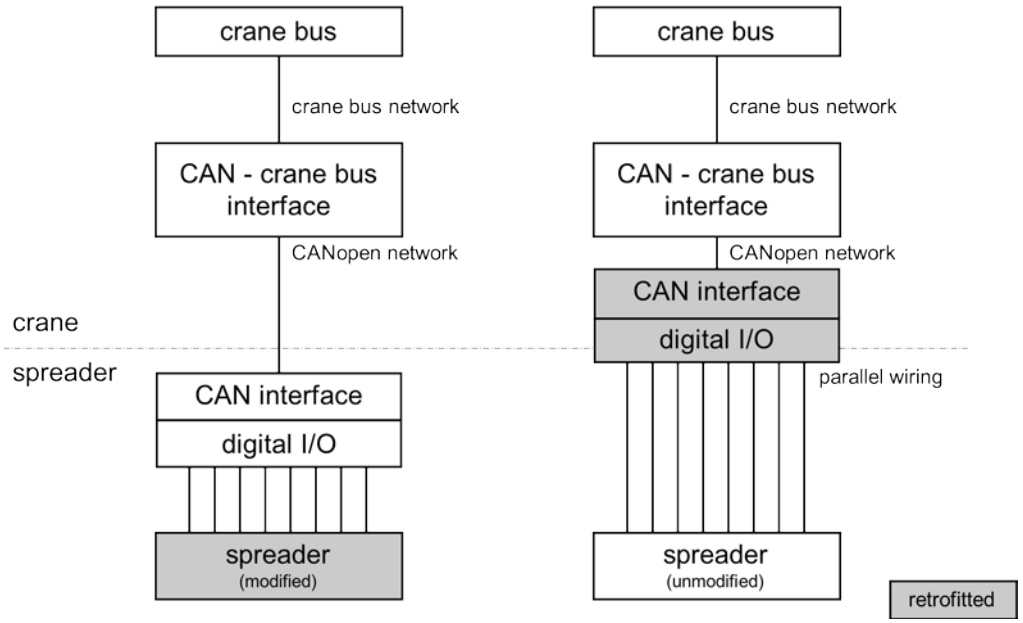

Figure 3 – CAN or direct-wired connection between a new crane and an old spreader

8 Direct-wired connection between an old crane and an old spreader

8.1 General

Figure 4 shows the direct-wired connection between an old crane and an old spreader.

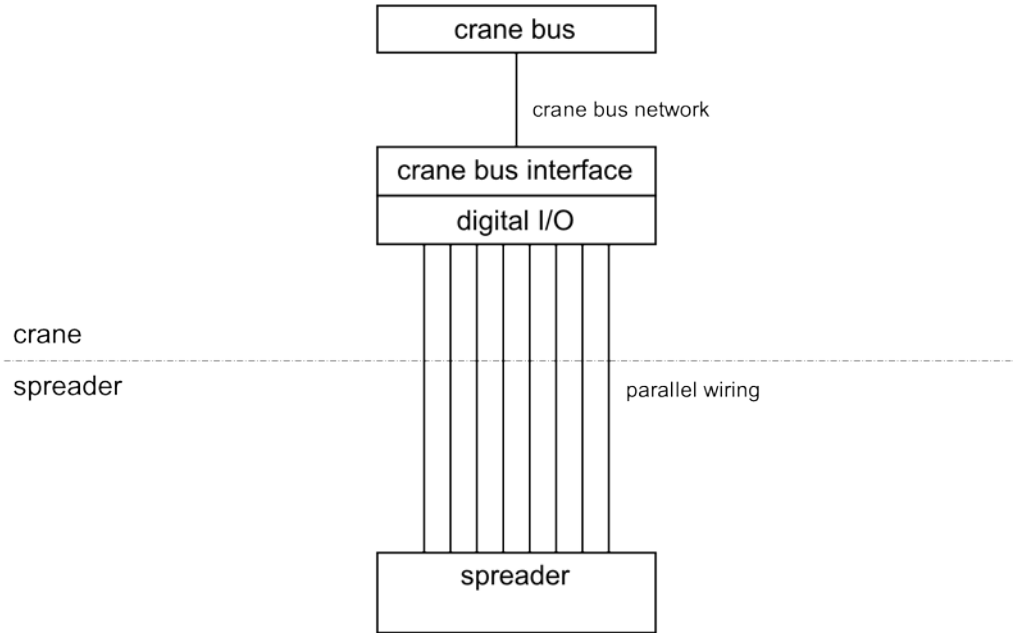

Figure 4 – Direct-wired connection between an old crane and an old spreader

8.2 Hardware compatibility

Table 1 shows the worst-case hardware configuration for connection between an old crane and an old spreader.

Table 1 – Worst-case hardware configuration for connection between an old crane and an old spreader

Hardware configuration
CAN cable length between crane and spreader up to 200 m: - Unshielded multicore cable - High-energy transmission in same cable
Up to two slip rings: Slip rings for CAN transmission not separated from energy transmission
Up to four connectors

8.3 Manufacturer-specific transmission with a boosted CANopen network

If the normal physical layer as defined in /ISO11898-2/ is not suitable for the electric environment of the crane/spreader application, a boosted physical layer may be used that is connected to the standard CAN via converters.

Figure 5 shows the manufacturer-specific transmission with a boosted CAN physical layer.

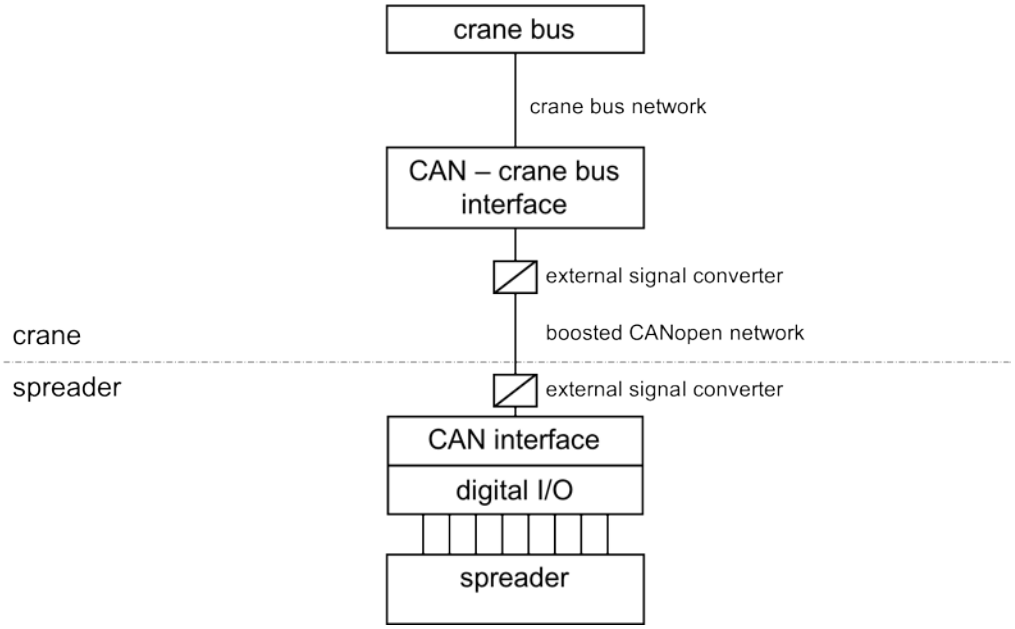

Figure 5 – Manufacturer-specific transmission with a boosted CANopen network

