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Author: Knud E. Hansen
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General Information for RC 35-210,
an Interface to connect
RC 3500 General Purpose Controller
with another RC 3500

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Abstracts: This paper describes the logical structure of an interface to
interconnect two RC 3500 General Purpose Controllers.

A/S REGNECENTRALEN
3-9, Guldsmødegade
DK-8000 Aarhus C.

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The RC 35-210 (RC 3500 - RC 3500 interface) is connected to two I/O channels on each RC 3500, one channel (the Write Channel) is used to transmit data and control information, the other one (the Read Channel) to receive data and status information.

The RC 35-210 interface covers interconnection requirements between two RC 3500 General Purpose Controllers.

For details about the system, refer to fig. 1.

All information (data, control, status) between the two machines are sent as 16 bits words.

In the following sections the four possible I/O instructions of RC 3500 are further described for both the Write Channel and the Read Channel.

Write Channel.

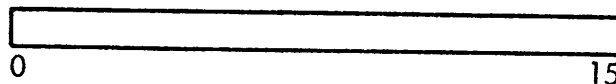
2.1

This channel is used to transmit data and control information to the opposite machine.

Write Control.

2.1.1

From RC 3500 to RC 35-210.



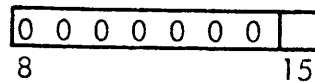
When one RC 3500 (machine I) sends a Write Control Command on its Write Channel, the RC 35-210 interface sends an interrupt to the opposite RC 3500 (machine II) on the Read Channel; at the same time an EOI-Flag is set in the interface, so, if the machine II is looping in a Read Block of Words, the following Read Data Command receives EOI-header from the interface, causing the Read Block of Words loop to terminate. This situation indicates to machine II that a Status Information is ready from machine I.

The 16 bits in the control word from machine I is available for machine II by executing a Read Status Command on the Read Channel.

Read Status.

2.1.2

From RC 35-210 to RC 3500.



bit 15: RECEIVER READY.

Bit 15 = 1 on the Write Channel for machine I, if machine II is ready to receive a new data word or control word from machine I. Executing of these Read Status Commands will not interrupt any of the two machines.

Bit 15 is cleared whenever machine I sends a Write Control Command or a Write Data Command on the Write Channel.

Bit 15 is set again when interrupt is sent on the Write Channel (section 2.2.2 and 2.2.3).

bit 14-8: Logical zero.

Read Data.

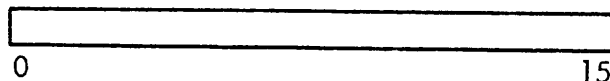
2.1.3

Executing of this command on the Write Channel has no effect in the RC 35-210 interface.

Write Data.

2.1.4

From RC 3500 to RC 35-210.



Whenever machine I sends a Write Data Command to the RC 35-210 interface, interrupt is sent to machine II on the Read Channel.

The 16 bits in the data word are available to machine II by executing a Read Data Command on the Read Channel.

Read Channel.

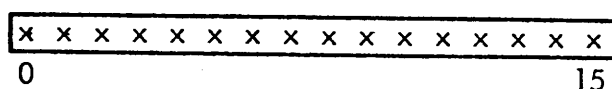
2.2

This channel is used to receive the data and control information transmitted from the other RC 3500.

Write Control.

2.2.1

From RC 3500 to RC 35-210.



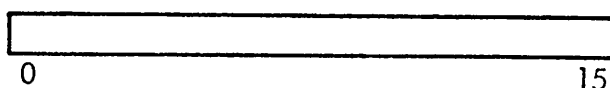
bit 15-0: Not used.

Decoding of a Write Control header causes the RC 35-210 interface to send an interrupt on the Read Channel, if a Data Word or a Control Word is ready from the opposite RC 3500 (section 2.1.1 and 2.1.4).

Read Status.

2.2.2

From RC 35-210 to RC 3500.



bit 15-0: The control word (bit 15-0) from the opposite RC 3500.

This status word is only available on the Read Channel after detection of the situation mentioned in section 2.1.1.

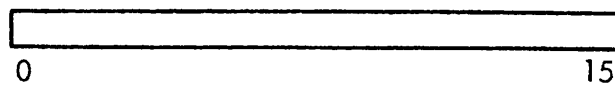
After terminating of the Read Status Command on the Read Channel, the EOI-Flag in the interface is reset and interrupt is sent on the Write Channel to the opposite RC 3500.

After executing the Read Status Command, the status word in the interface is destroyed.

Read Data.

2.2.3

From RC 35-210 to RC 3500.



bit 15-0: The data word (bit 15-0) from the remote RC 3500 (see section 2.1.4).

After terminating of the Read Data Command on the Read Channel interrupt is sent on the Write Channel to the remote RC 3500; except if the EOI-Flag (section 2.1.1) is set in the interface.

Write Data.

2.2.4

Not used on this channel.

Transmission Mode.

2.3

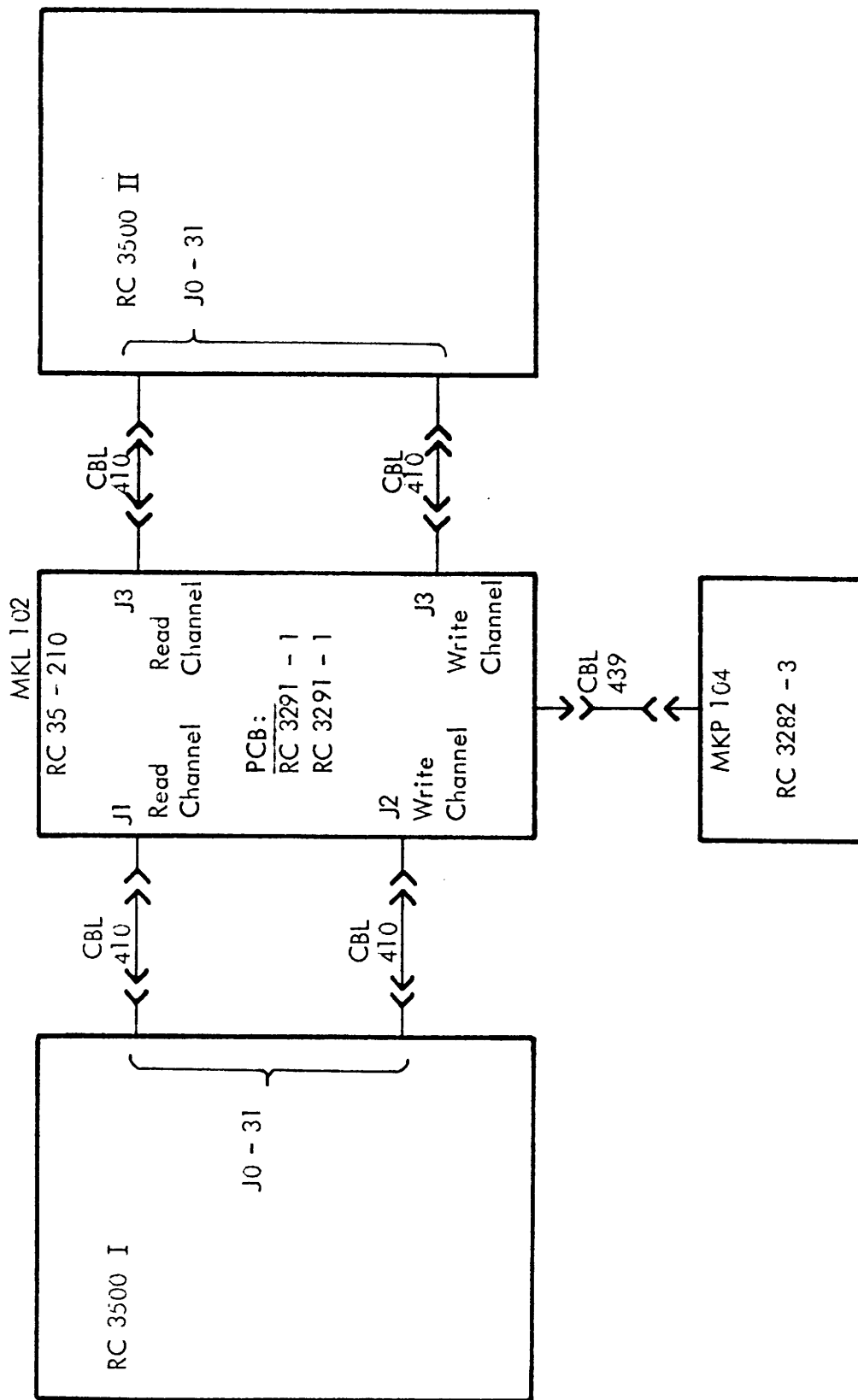
The RC 35-210 interface is full duplex, this means, that the interface can control transmission from machine I to machine II and from machine II to machine I simultaneously.

Physically the RC 35-210 is placed in a 2 position-module, MKL 102.
The interface consists of two identical printed circuit boards, RC 3231-25.
The interface is supplied with power from a standard power module
MKP 104 (RC 3282-3).

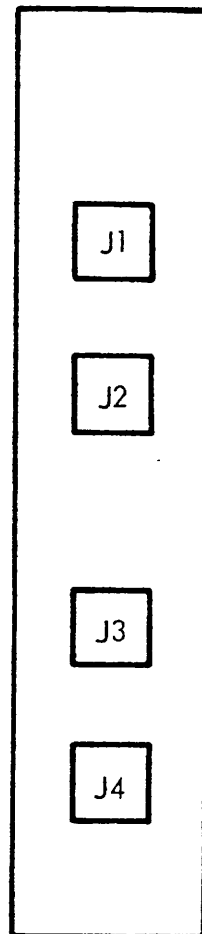
Cable CBL 410 is used in all connections between the RC 35-210 interface and the two RC 3500 (2 cables to each machine). The max. length of CBL 410 is 100 m.

Fig. 2 shows the physical position of the connectors on the back of the RC 35-210 interface.

750219 KNEH, 750227 AMS.



750219 KNEH 750227 AMS.



- J1: READ CHANNEL TO RC 3500 NO. I
- J2: WRITE CHANNEL TO RC 3500 NO. I
- J3: READ CHANNEL TO RC 3500 NO. II
- J4: WRITE CHANNEL TO RC 3500 NO. II