adic

Installation Guide

Drive Control Interface

DRIVE

CONTROL

INTERFACE

Order No. DOC E00 027

Table of Content

1 Before You Begin Working

1.1 Intended Audience

This manual contains all information and instructions you need for install and Configure a Drive Control Interface

1.2 Explanation of Symbols and Notes

The following symbols and highlighted passages draw attention to important information.

Explanations of these symbols see chapter „Hazard Alert Messages"

Information

Information important for understanding this introduction.

<KEY>	Key on the keyboard of the AMU processor
<1> + <2>	Press these keys simultaneously
„ABCD"	Headline, e. g. chapter 3 „For Your Safety" Special term, e. g. „Manage Users" Filename, e. g. „AMUINST.EXE"
ABCD	Terms appearing on the AMU operating console
ABCD	Command line appearing in the OS/2 input window, e. g. [C:\]cd amu
☞	Reference to a description - on another page of this manual

1.3 Technical Support

If you cannot solve a problem with the aid of this document or if you are interested in a recommendation regarding trainig, please contact your contract partner or the ADIC/GRAU Technical Assistance Center (ATAC).

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1.4   About this Manual

This manual contains all information and instructions you will need for correct installation of the Drive Control Interface.

You have received comprehensive training at ADIC or ADIC/GRAU Storage Systems and can operate and service the AMU-PC without endangering yourself or others.

WARNING!

Operation and maintenance of the AML system by untrained persons can lead to dangerous situations.

The consequence could be severe or fatal injury caused by moving parts or contact with live connections.

Introductory training at ADIC or ADIC/GRAU Storage Systems therefore is an indispensible precondition for all who work with the AML system!

You are servicing the plant and are therefore also repsonsible to ensure only trained personnel authorized by ADIC or ADIC/GRAU Storage Systems carries out the following on the equipment

- prepare for operation
- set-up
- start
- operate
- shut down
- maintain
- restart

Refer to the Operator Guide if there is an operating problem.

If you cannot solve the problem

- consult a trained specialist
- consult the service partner, ADIC or ADIC/GRAU Storage Systems

Please note however:

WARNING!

You may carry out some work and adaptations only if you have the appropriate qualifications and training!

Disconnect the power cable befor you open the device.

1.5 Copyright

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CM/2	registered trademark of IBM
DB 2/2	registered trademark of IBM
IBM	registered trademark of IBM
OS/2	registered trademark of IBM

2 About Drive Control Interface

2.1 Compatibility

For usage of the DCI the following prerequisite must be ok:

Hardware:

- AML/2, AML/E and AML/J
  (Scalar 1000 has a own drive communication and will not support DCI)
- AMU-PC: ADIC/GRAU-Controller or compatible (The before used Artist, Dell or Siemens PCs have not enough performance and will be not supported.
- Serial Commication with IBM RIC-Adapter is **not** supported (Please use the new Multiport Adapter (+ Service Information .

Software:

System	Microcode Version
AML/2	Version 2.30G with Fix 4 or higher
AML/E	Version 2.30G with Fix 4 or higher
AML/J	Version 4.01 or higher
AMU	3.10A or higher
DAS/2	3.012 or higher

2.2 Structure of Drive Control Interface (DCI)

:DCI is the hardware for connecting

- the AML Management Unit (AMU)
- the DLT LP dirves

The controller is designed for AML/2, AML/E and AML/J

For the communication is the CAN-AC1-Adapter in the AMU-PC necessary. This adapter used a shared memory from D0000 - DFFFF, but no interrupt. The jumper settings of the CAN-AC1 adapter are described on a next chapter (☞ "CAN-AC1-Adapter" from page 2 - 4).
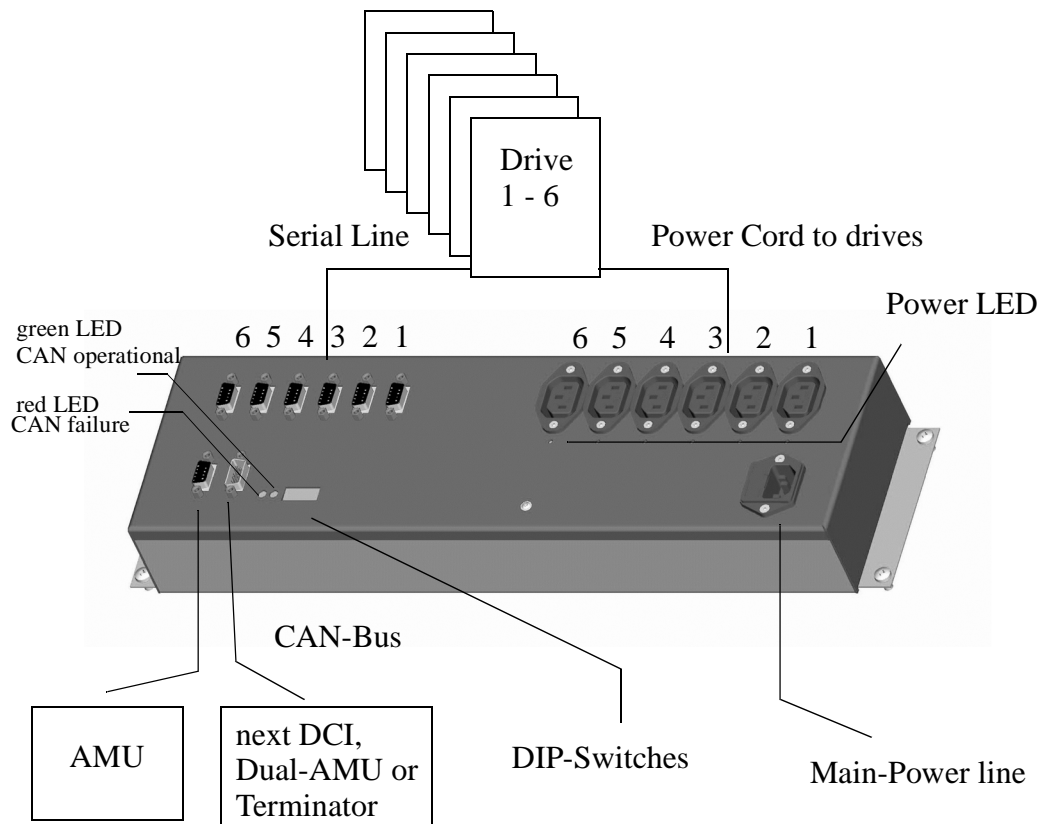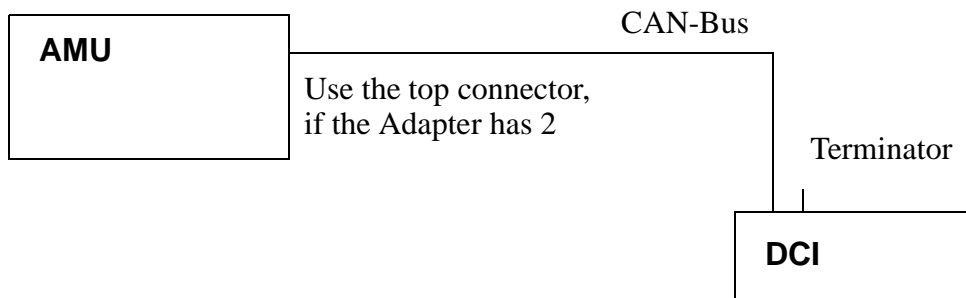
Fig. 2-1: Top view of DCI

On each communication line (serial line to the drive and both CAN-Bus lines)
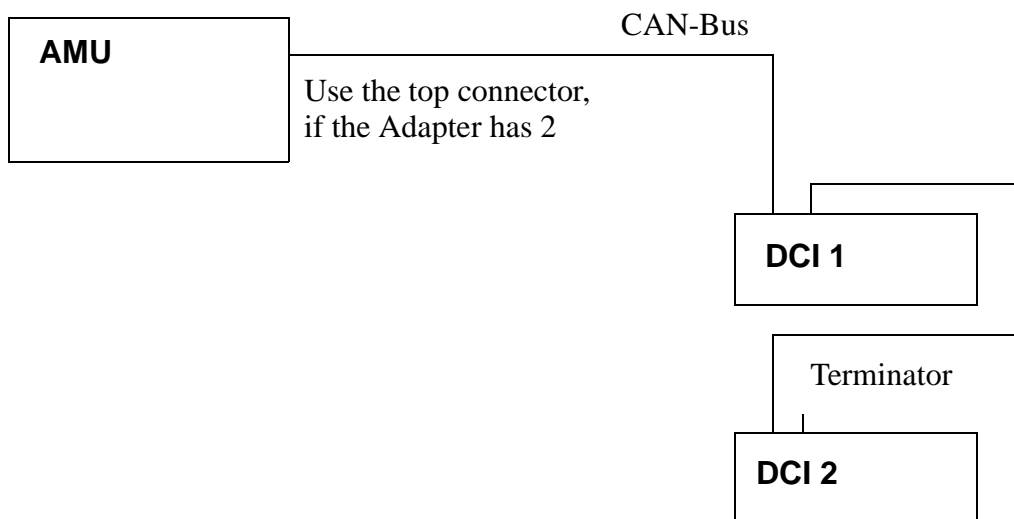must be mounted a snap ferrit (15W 038 001).

2.3   Configurations

Depend of the number of DCI boxes and AMU PCs in a system are different confi-
gurations possible:

Configurations

Single AMU and Single DCI

| AMU | CAN-Bus |

Use the top connector,
if the Adapter has 2

Terminator

| DCI |

Single AMU and multiple DCIs

| AMU | CAN-Bus |

Use the top connector,
if the Adapter has 2

| DCI 1 |

Terminator

| DCI 2 |

Dual-AMU and multiple DCIs

| AMU-A | CAN-Bus |

Use the top connector,
if the Adapter has 2

| DCI 1 |

| AMU-B |

| DCI 2 |
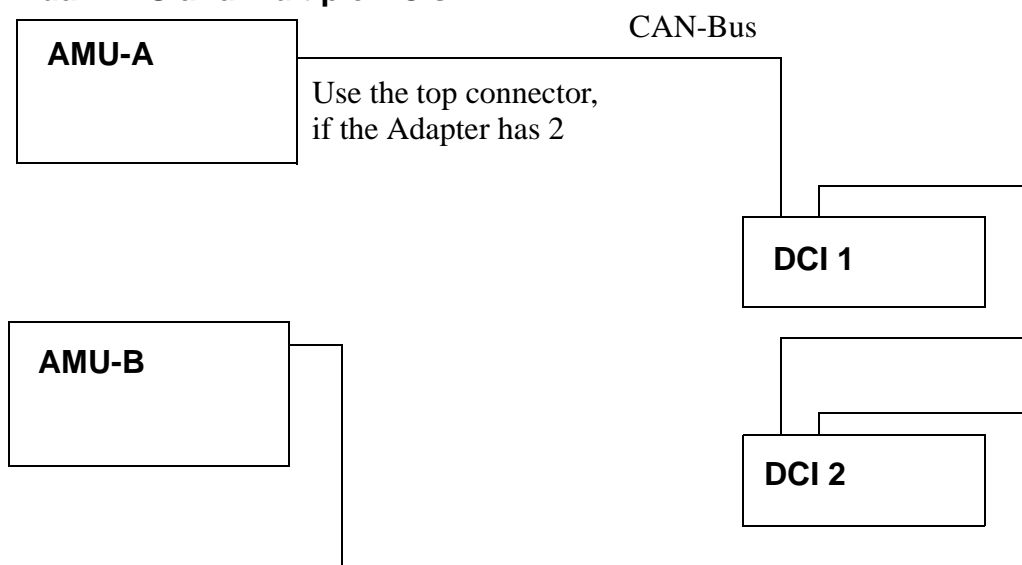
2.4   **CAN-AC1-Adapter**

For the DCI Communication must be installed a CAN-AC1-Adapter.

On the Adapter must be set the jumpers correctly.
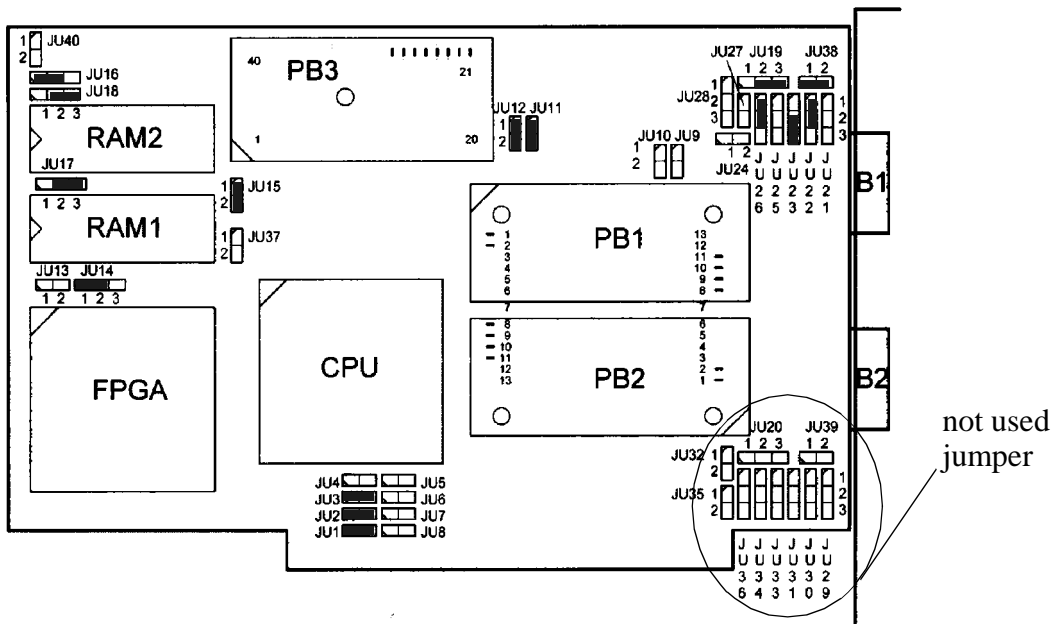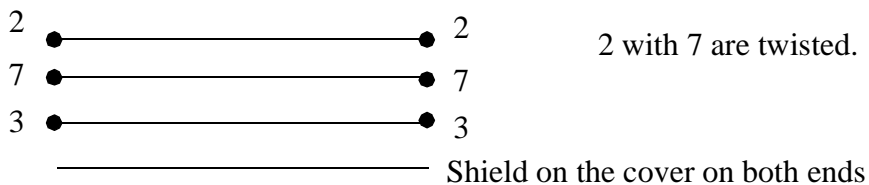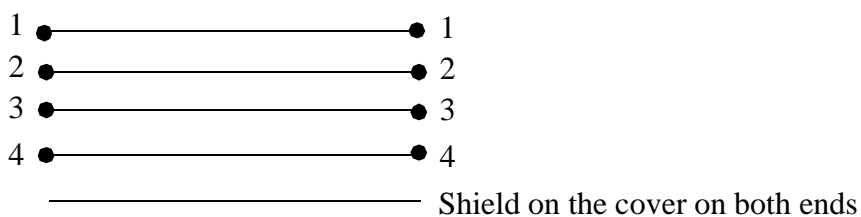
The following picture shows the jumper layout:

Fig. 2-2: Jumper-Layout des CAN-AC1-Adapter

Please check the Jumper on the CAN-AC1 adapter
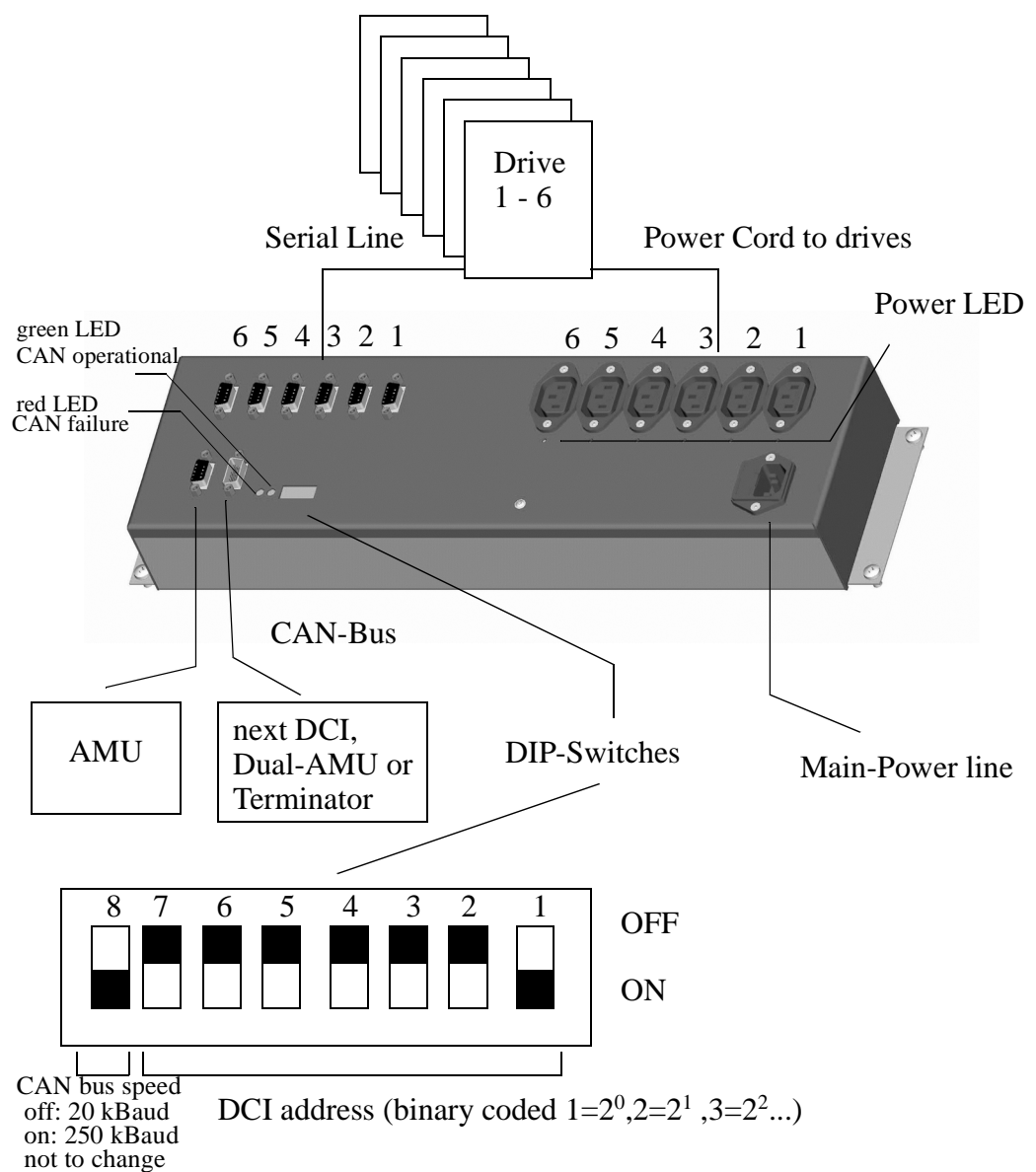
The Cables for the CAN-Bus have the following layout:

2 with 7 are twisted.

Shield on the cover on both ends

The serial Line (DCI to Drive) has the following layout:

Shield on the cover on both ends

3 Configuration DCI

3.1 Configuration of the DCI

The Drive Control Interface is necessary for controlling the DLT 7001 and DLT 8001 (Low Profile) drives.

Drive
1 - 6

Serial Line   Power Cord to drives

Power LED

green LED
CAN operational   6 5 4 3 2 1   6   5   4   3   2   1

red LED
CAN failure

CAN-Bus

AMU   next DCI,   DIP-Switches
             Dual-AMU or
             Terminator   Main-Power line

8	7	6	5	4	3	2	1	
								OFF
								ON

CAN bus speed
off: 20 kBaud
on: 250 kBaud   DCI address (binary coded $1=2^0, 2=2^1, 3=2^2...$)
not to change

The Configuration will be done in

- **Graphical Configuration** of the AMU (AMUCONF.INI) and
- for loading microcodes in AMUSTART.CMD
  the following setting is necessary in the AMUSTART.CMD:

```
cd CAN
DL
```

- Check or add in the CONFIG.SYS the following driver setting.

```
DEVICE=C:\AMU\CAN\CANDRV.SYS
```

- Please do following steps in the **Graphical Configuration** of the AMU:
  - Create for each DCI one drive container
  - Create connection lines from container to the robot
  - Open the container and move the DLT drives in the container or create drives
  - Open the drive configuration and set up the following values

Description (Name for DAS)

Dismount Management
(Default-values for DAS)

Clean Management

Automatic Cleaning
(DCI controled)

Number of Cycles = 0, for no cyclic Cleaning but cleaning on request

Clean Time: 200 (Average duration of the cleaning)

Clean Pool: In CleanPool-Management definied Name, which contained the clean tapes for the DLT drives.

Fig. 3-1: Drive configuration for DLT with DCI

  - Leave the container
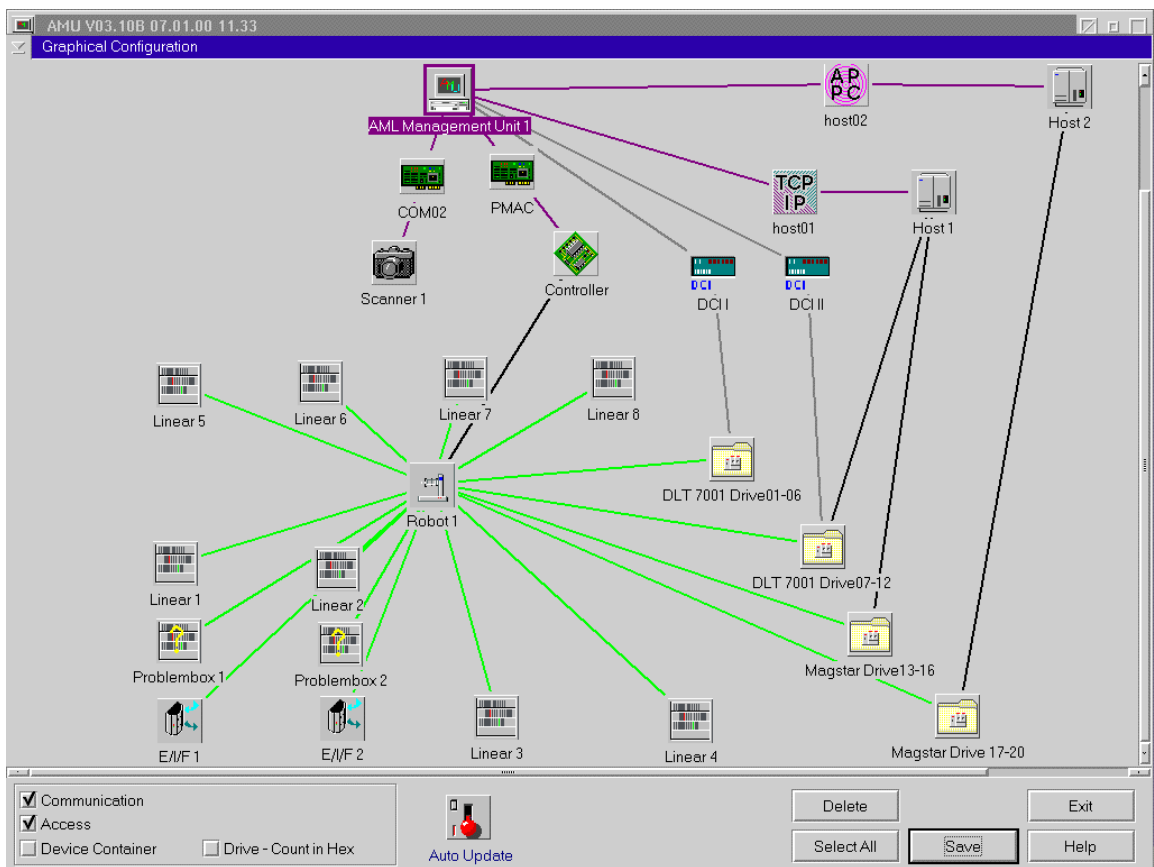 - Create a connection line between container and AMU symbo

1

Fig. 3-2: Example of AML/J configuration with DCI in the "Graphical Configuration"

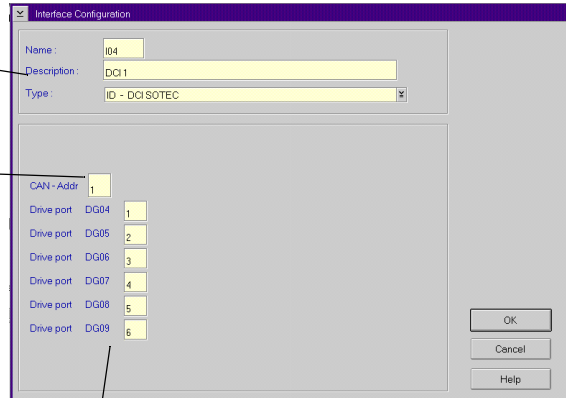- Open the new arised communikation symbol between drive container and AMU
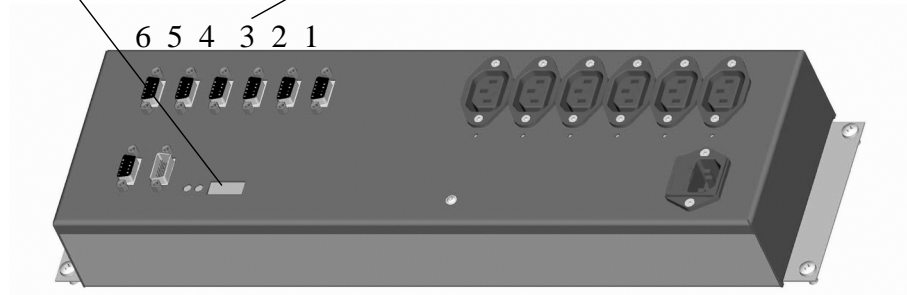
- Set up the following values.

Description
(e.g. "DCI 1" where 1
is the CAN-Address)

CAN-Address
related to the setting
of the DIP-switches

Interface Configuration
Name :	I04
Description :	DCI 1
Type :	ID - DCI SOTEC
CAN - Addr	1
Drive port	DG04	1
Drive port	DG05	2
Drive port	DG06	3
Drive port	DG07	4
Drive port	DG08	5
Drive port	DG09	6
OK
Cancel
Help

Drive Port of the DCI to the drive

6 5 4 3 2 1

3.2   Startup and Test with DCI

There are two operating modes of DLT 7001S and 8001S

Drive empty and the handle button below is outside

Drive occupied and the handle button above is outside

Warning:

If there any other combination (e.g. Drive empty and button above is outside) the setting must be correct manually:

- **Switch off th drive**
- **with glove in the drive slot the small button (Interposer) pressed together with the handle button (The Interposer locked the drive)**

3.2.1 Start Sequence for Systems with DCI

a) switch on the DCI together with the drives

b) switch on the AMU - PC's

c) switch on the robot(s) and wait for robot (and tower) ready

d) during the first activity on a drive with DCI, the AMU checked the condition of the drive
- Drive is emty and not ready (green LED flashing):
  Robot pressed handle and wait for drive release.
- Drive is occupied
  condition will detected by DCI, keep is possible after the UNLOAD command (SCSI or AMU)

Information

If the drive will be switch off and again on during the operation, the DCI detecxt the new conditions and operate correct (see above point d))

3.2.2 Tests with Drives

Mount is only possible for a drive, which is ready (green LED is on but not flashing)

Keep is only possible after a

- SCSI-unload
- pressed unload button on the drive (robot or manual)

Using of PMMAINT with DCI

Before you use the Pmmaint, also the script DL.bat (C:\AMU\CAN\DL.BAT) must be activated.

3.3   Diagnostic

For the diagnosis of errors with the DCI and the connected components you have

- the LED on the DCI and
- the AMU-Trace ID KRN9

3.3.1   LED on DCI

Ther are also situations possible with no or both LEDs on.

LED	Situation
`red LED`	Problem in the CAN Bus, DCI communication is not possible
`only green LED`	CAN Bus is active and the DCI communication is running

3.3.2   Trace

CAN-Bus Initialisation

```
AMU INFO: CanStart DLP
AMU INFO: GetCanConfiguration DCIs: 1 Drives: 2 (2)
AMU INFO: DLT init DP_send ok
AMU INFO: CanRecvThread running
AMU INFO: EMCY received
AMU INFO: CANStart CAN has problems, retry for some time
AMU INFO: EMCY received
AMU INFO: EMCY end
AMU INFO: CANStart CAN running
```

- EMCY: Emergency
- CANNOK: CAN Bus failure

Diagnostic

Normal output of a drive diagnostic

```
000660 AMU INFO: CDR WaitLoop  20

001207 AMU INFO: Drive Status   50 01 00 08  :   07 01 0f 50 03 00 00 01

001619 AMU INFO: CAN-Status :

001619 AMU INFO: CAN-Status :  Drive-Micro-Code-Revision : 00001

001619 AMU INFO: CAN-Status :  Controller-Micro-Code-Revision : 0000f

001619 AMU INFO: CAN-Status :  Status1 - Byte 3 : NoId = [0] , InFlux = [1] , CartrigePresent = [0]
, HardwareError = [1] , CleaningRequested = [0] , CompressionEnabled = [0] , WriteProtected = [0] ,
OperateHandle = [0]

001619 AMU INFO: CAN-Status :  SCSI-ID = [50]

001619 AMU INFO: CAN-Status :  Current Tape Format Code : [No Tape                         ]

001619 AMU INFO: CAN-Status :  Tape Motion Status : [???] --- Alternate Unload : [Alternate Unload
= 0]

001619 AMU INFO: CAN-Status :  Load Complete = [0] , Cleaning Tape Expired = [0] , Cleaning Required
= [0] , Audio Indicator = [0] , Handle Position = [1]

001029 AMU INFO: DG04 : In Flux

001044 AMU INFO: DG04 : Handle Open

       AMU INFO: CDR Prepare send TEST DG04
```