

I/O Module for CAN Networks



UL: 04-02-03		Absolute encoder with CAN
UL: 07-01-05-06		635 - Product - Manual
UL: 07-01-08-02		631 - Product - Manual
UL: 07-02-08-03		637 - Product - Manual
UL: 07-02-09-01		637+ - Product - Manual
UL: 07-02-10-01		637f - Product - Manual
UL: 07-04-03		BCD Thumbwheel Switchset with CAN Interface
UL: 07-05-03-03		Bus interface CAN for Digital drive 631
UL: 07-05-03-02		Bus interface CAN for Digital drive 635/637/637+/637f
UL: 09-05-01		Intelligent Operator-Terminal IBT – Product Description

UL: 10-06-03



Serial transfer protocol EASY-serial - Product Description
for 635/637/637+ 637f

UL: 10-06-05



BIAS - Command Description

UL: 10-06-06



Serial transfer protocol
EASY-serial - Product Description for 631

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Made in Germany, 2005

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Thanks for your confidence choosing our product.

These operating instructions present themselves as an overview of the technical data and features.

Please read the operating instructions before operating the product.

If you have any questions, please contact your nearest SSD Drives representative.

Improper application of the product in combination with dangerous voltage can lead to injuries.

In addition, damage can also occur to motors or other products.

Therefore please observe our safety precautions strictly.

Safety precautions

We assume that, as an expert, you are familiar with the relevant safety regulations, especially in accordance with VDE 0100, VDE 0113, VDE 0160, EN 50178, the accident prevention regulations of the employers liability insurance company and the DIN regulations and that you are able to use and apply them.

As well, relevant European Directives must be observed.

Depending on the kind of application, additional regulations e.g. UL, DIN are subject to be observed.

If our products are operated in connection with components from other manufacturers, their operating instructions are also subject to be observed strictly.

I/O-CAN represents a simple and low cost digital input/output unit for CAN networks.

It provides 8 digital lines, where four lines are configured as inputs only and four other lines are programmable as input or output, by DIL switch setting.

Signal changes on inputs are treated as interrupts and will immediately cause a corresponding message to the target unit.

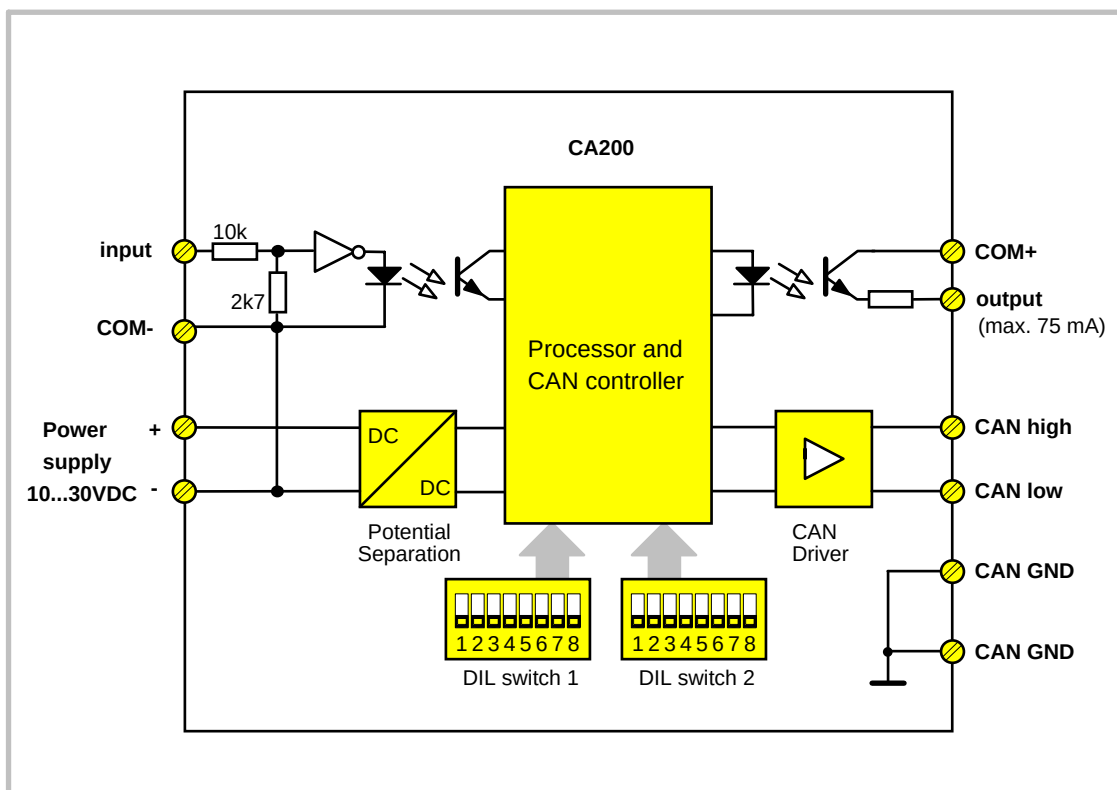
Front LED's provide display of the logical state of each line. Inputs and Outputs are PLC compatible (18 - 30V) and fully isolated against the CAN-Bus.

Please observe:

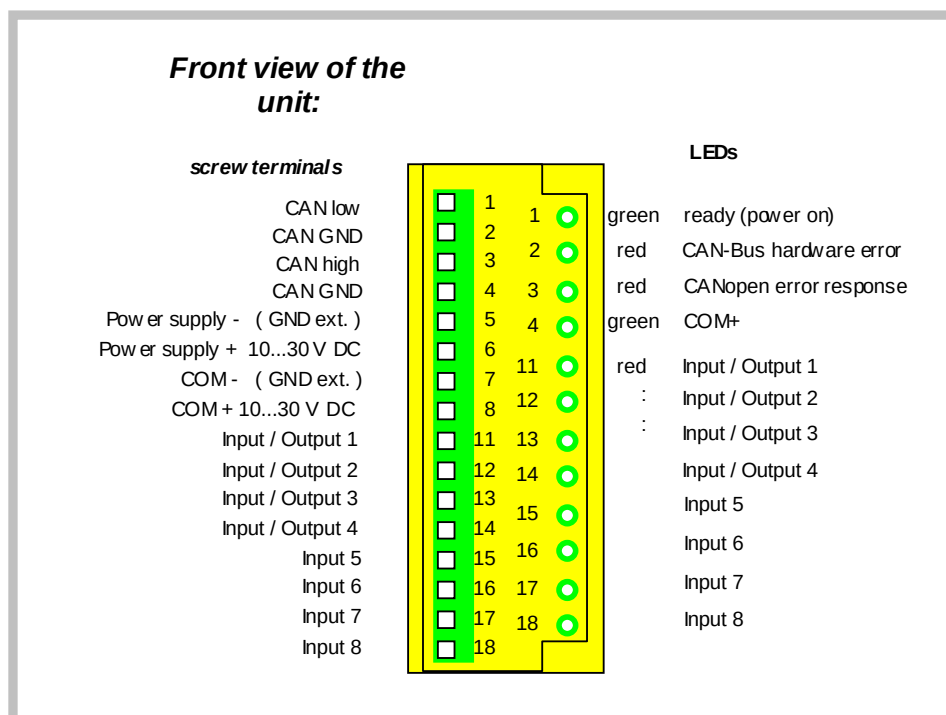
All DIL switch settings are only read upon initialisation and changes during normal operation will not be recognized! After change of DIL switch settings, you must switch off the unit and power up again.

Setting all DIL switches to OFF at the same time starts factory test mode and is not allowed for normal use!

2.1 Block Diagram and terminal assignment

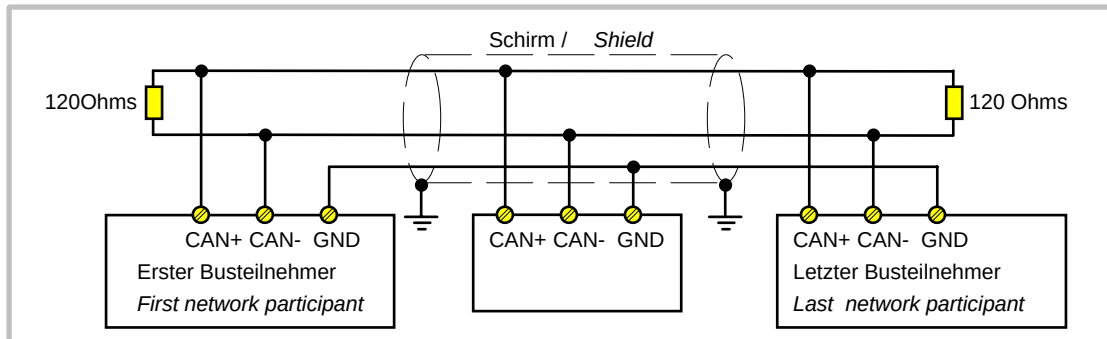


2.2 Front view and pin connection



2.3 CAN-BUS Termination

Both extreme ends of the CAN network must be terminated by a 120 Ohms resistor. The shield must be connected to earth potential.

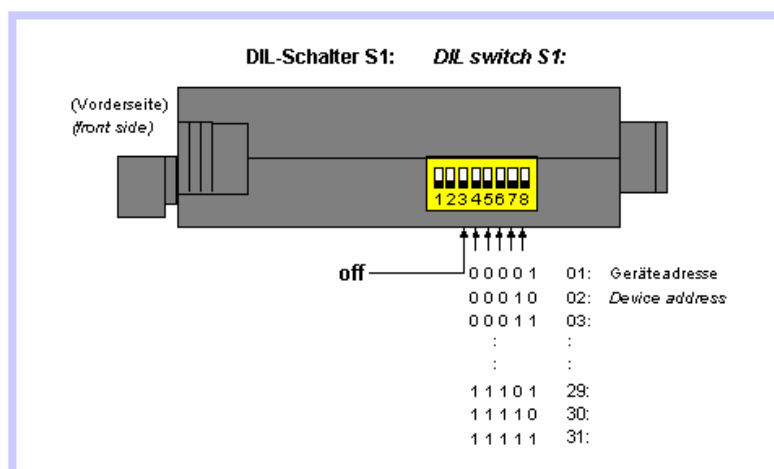


Depending on the Baud rate, the following maximum cable length must not be exceeded:

Maximum Cable Length					
Baud rate (kBit / s)	50	125	250	500	1000
Cable length (m)	1000	550	250	110	25

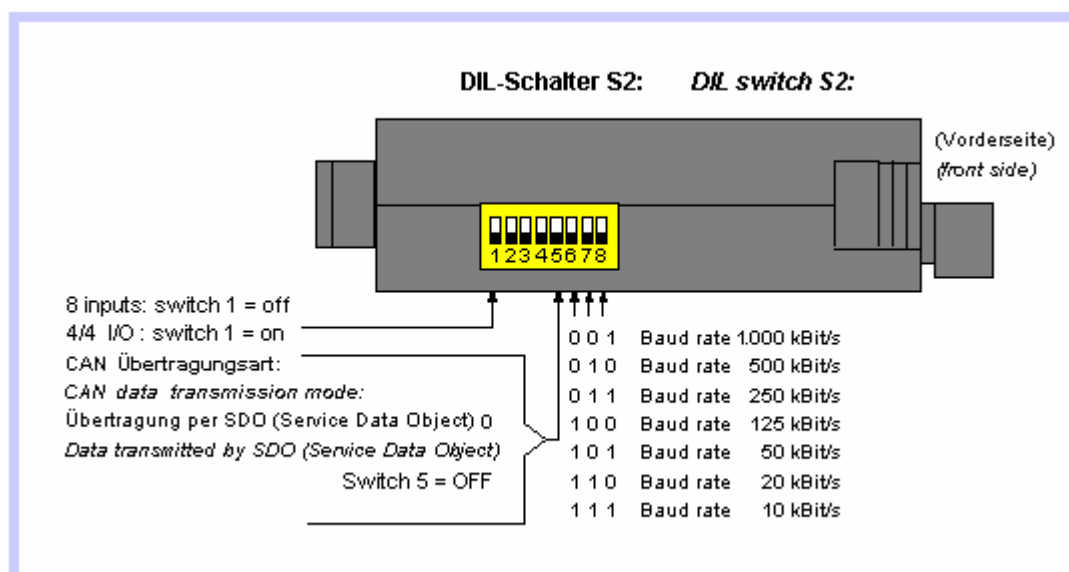
3.1 Setting of unit address

Positions 4 - 8 of DIL switch S1 select the unit address (01 - 31).



3.2 Setting of the network Baudrate

Setting the baud rate uses positions 6 to 8 of DIL switch S2:



3.3 Further adjustments of the DIL - switch

Position 5 of DIL switch S2 determines the CANopen transmission mode.

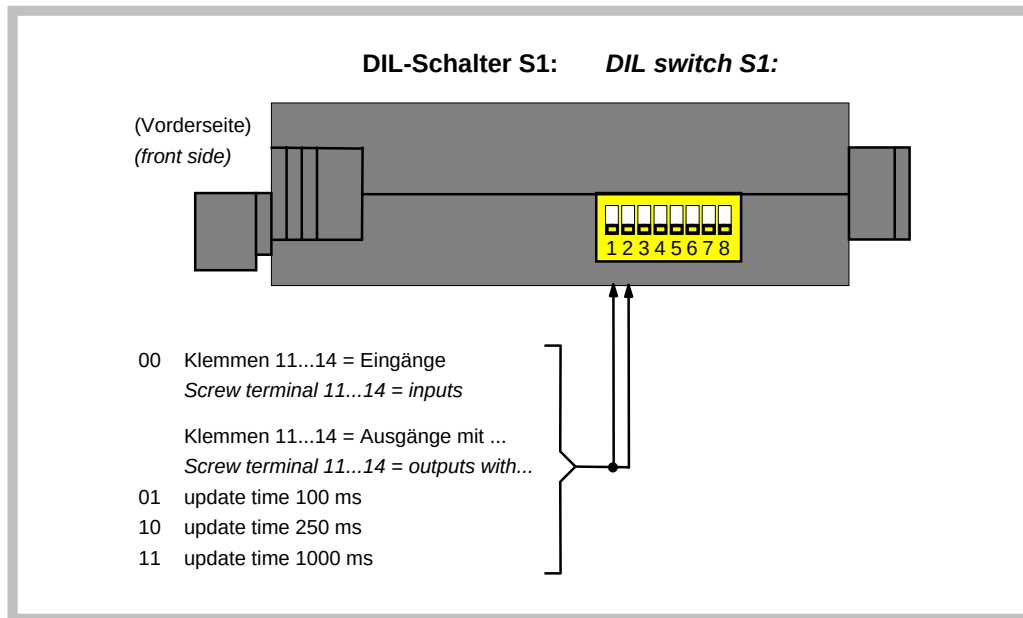
For the connection with the drives of the 630 series set the switch to OFF.

Position 1 of DIL switch S2 depends on the utilization of the module (8 inputs or 4/4 I/O)!

(Service Data Object):**[DIL switch S2, position 5 = OFF]**

The screw terminals 11 to 14 can be defined either as inputs or as outputs by positions 1 and 2 of DIL switch S1. If they are programmed as outputs, the update time (cyclic request of output data) can be set to three different values.

Besides the Position 1 of DIL switch S2 must set to „ON“ by utilization of the outfunction



The unit requests the output data by an SDO (Service Data Object) read request and transmits the input data by an SDO write request. Within the next 2.5 sec (Timeout) a corresponding read or write response is awaited.

Therefore, the selected unit address must match with the target device. No other communication objects are supported, except the SDOs.

Transmit SDO

Identifier:	Data-Byte 0	Data-Byte 1	Data-Byte 2	Data-Byte 3	Data-Byte 4	Data-Byte 5	Data-Byte 6	Data-Byte 7
1600 (640h) + unit adress	Command specifier: 2Fh= Write request 40h= Read request	(low) Index (high): (= 5FFFh - Code)		Sub-Index 1...4	input data	0	0	0

Receive SDO:

Identifier:	Data-Byte 0	Data-Byte 1	Data-Byte 2	Data-Byte 3	Data-Byte 4	Data-Byte 5	Data-Byte 6	Data-Byte 7
1472 (5C0h) + unit adress	Command specifier: 60h= Write request 4xh= Read request	(low) Index (high): (= 5FFFh - Code)		Sub-Index 1...4	output data	0	0	0

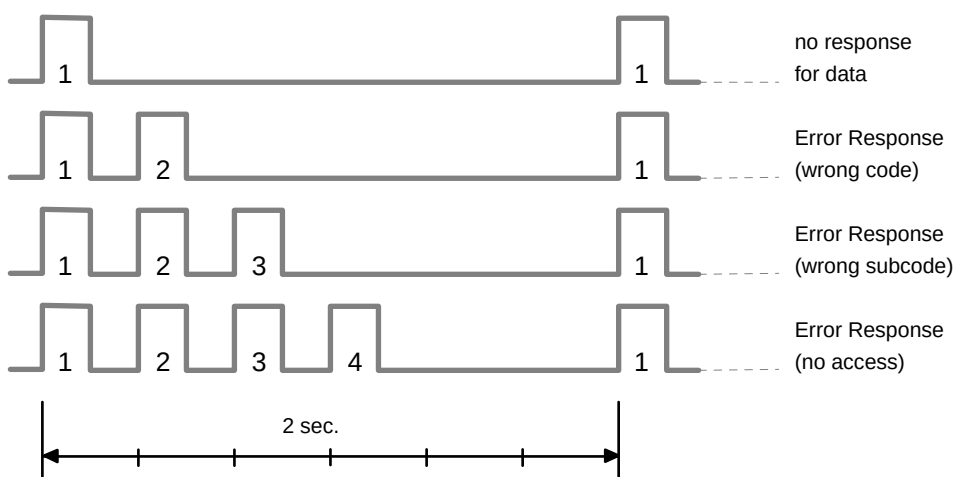
CAN-Bus hardware error LED2:

LED2 aus / off: Keine Störung / *no error*

LED2 blinkt / *flashing*: CAN warning

LED2 an / on: CAN Bus-off

CANopen error response LED3:



The CAN- I/O Interface is supported with devices of the 630 series as of firmware version V5.10 and of the EASYRIDER® windows software as of version V5.10.

The necessary settings for communication with CAN- I/O Interface are made with the EASYRIDER software. In the menu "configuration", "field bus module", the baud rate and node number of CAN- I/O Interface are selected.

The settings are immediately active upon the sending of the parameters.

Execute the function "Store data in EEPROM" (F7) so that the values are permanently transferred to the regulator.

The node numbers 1 - 31 are valid.

The node number 0 switches the function and the communication off.

Checking the communication with the CAN- I/O Interface is done in the menu "Diagnosis", "Field bus module" (strg + F9).

On the diagnosis page 2 in object 12 and 13, the identifiers set, the number of telegrams sent, and the status and data content of the object are displayed.

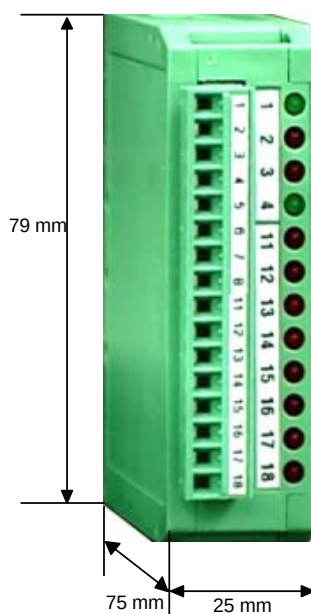
The Input data of the pin 11 - 18 are transmitted into the flags 11 - 18 on the drive, with valid baud rate setting, addressing and wiring.

In the BIAS diagnosis (F9) the transmitted flags are displayed.

With configuration of the pins 11 - 14 as output the flags 11 - 14 are transmitted to the CAN- I/O Interface.

Power Supply:	18...30 V DC
Power consumption:	50 mA
Inputs:	4 or 8 (adjustable)
Outputs	0 or 4 (adjustable), max. Output current 75 mA
Temperature-Range:	0...45°C
Weight:	110 g

Dimensions:

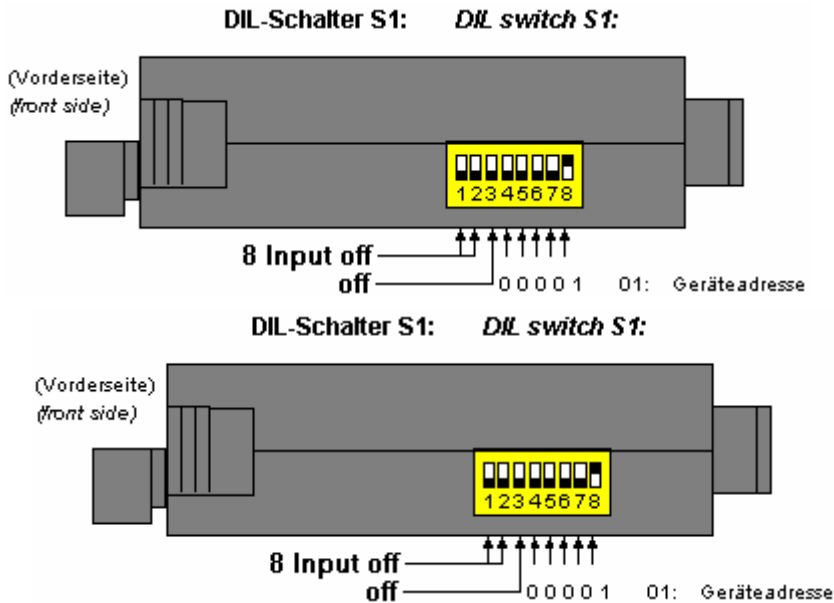


8.1 Application of the module with 8 inputs and 635 drive with CAN - BUS

8.1.1 Description

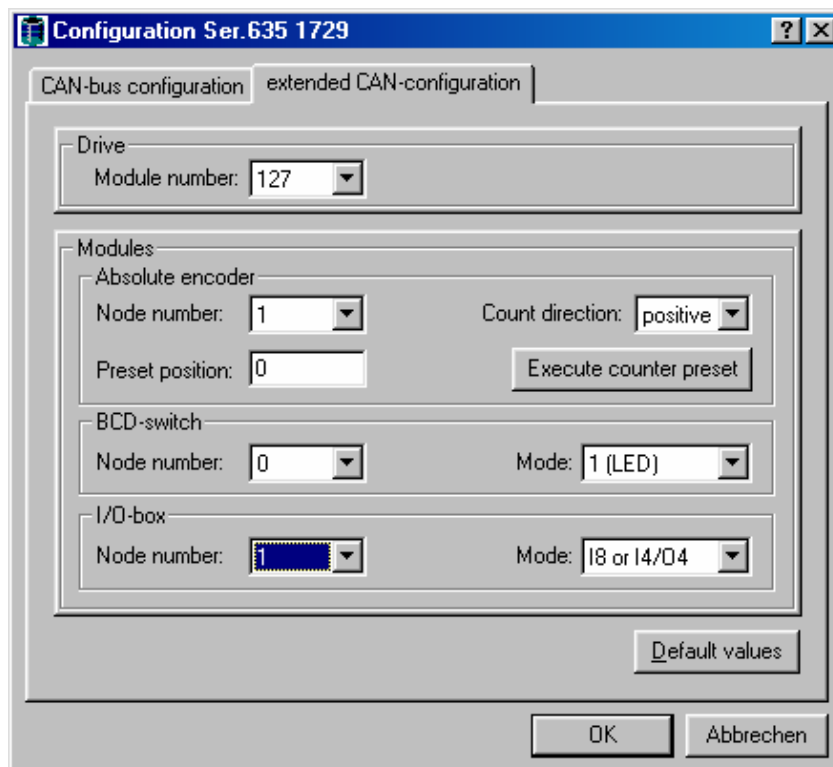
The module setting with node number 1 and baud rate 125 kBit/s should be used in the configuration with 8 inputs.

8.1.2 DIL-switch setting



8.1.3 635 CAN-BUS setting with EASYRIDER for Windows

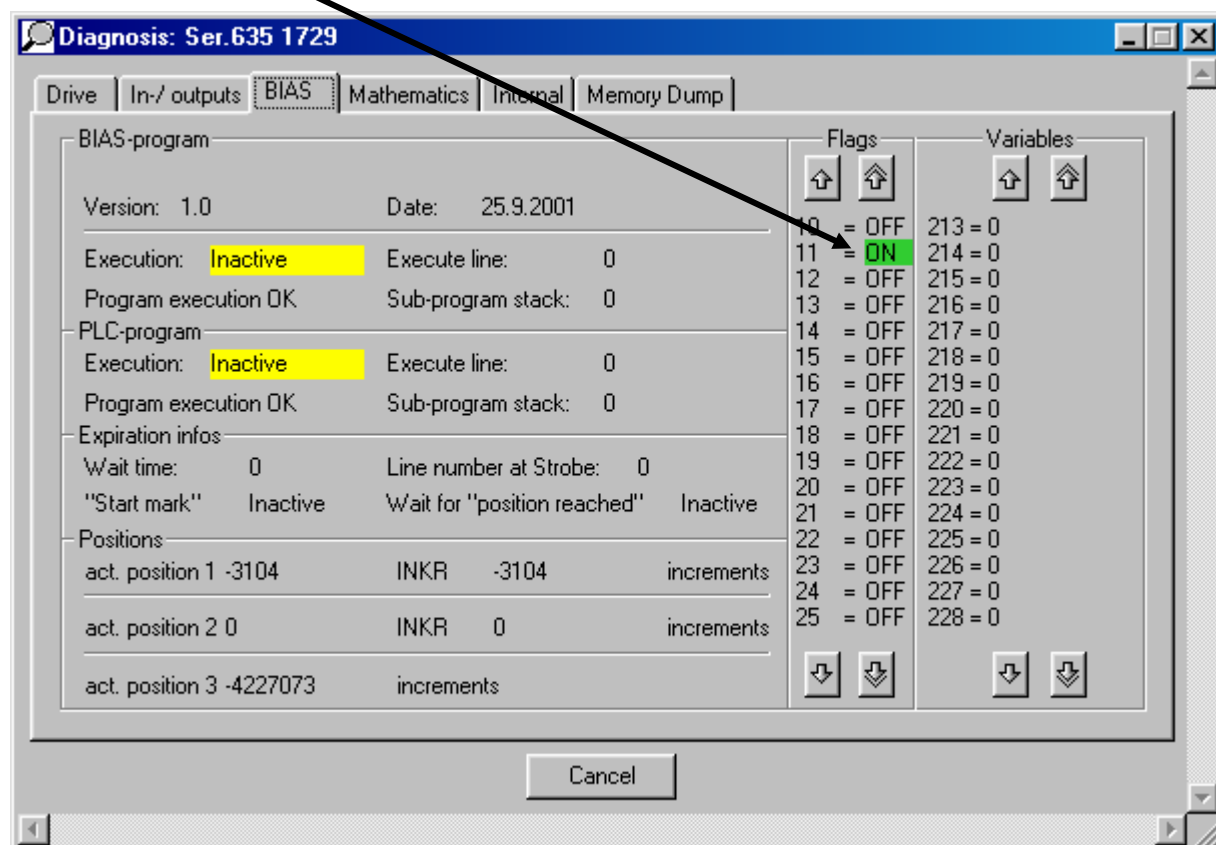
In the menu "Commissioning → Fieldbus" the baud rate 125 k Bit/s and the node number 1 for the I/O module will be dialed. By sending of the parameters the settings become active. To ensure storing of the values save against power failure, the function "Save parameter" (Press F7).



8.1.4 Test

After configuration of the CAN-I/O-module and the drive, the function can be tested now.

1. Interconnect the units with CAN- connecting cable.
2. Switch on 24V DC on both units.
3. Connect terminal 11 of the CAN - I/O module to 24V DC.
4. Check the applied signal with the EASYRIDER diagnostics → screen BIAS diagnostics. Flag 11 = ON



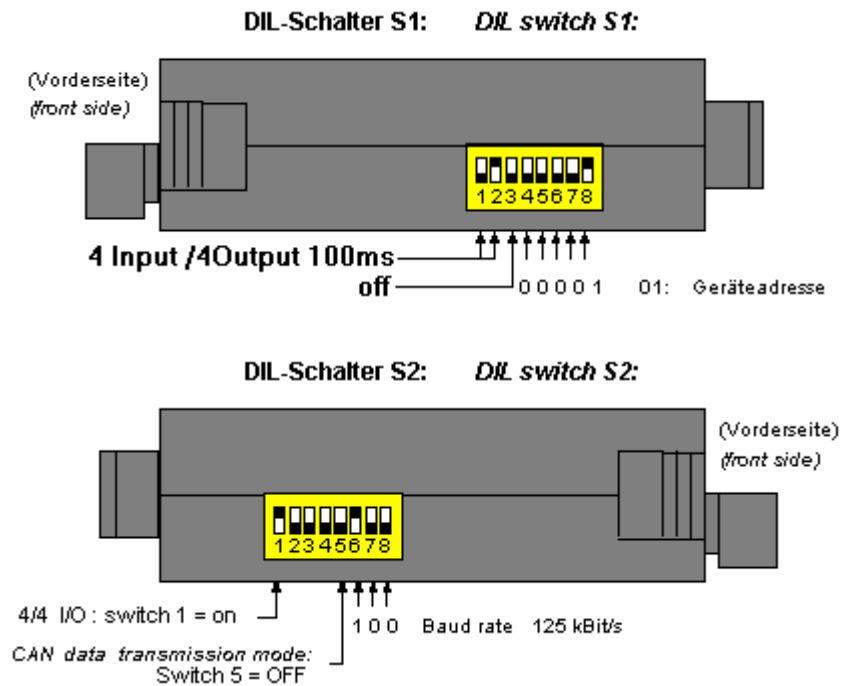
8.2 Application of the modules with 4 inputs and 4 outputs 635 drive with CAN - BUS

8.2.1 Description

The module setting with node number 1 and baud rate 125 kBit/s should be used in the configuration with 4 inputs and 4 outputs.

The outputs are to refresh in 100 ms cycles.

8.2.2 DIL-switch - setting



8.2.3 635 CAN-BUS setting with EASYRIDER for Windows

see chapter: 8.1.3.

8.2.4 Test

After configuration of the CAN-I/O-module and the drive, the function can be tested now.

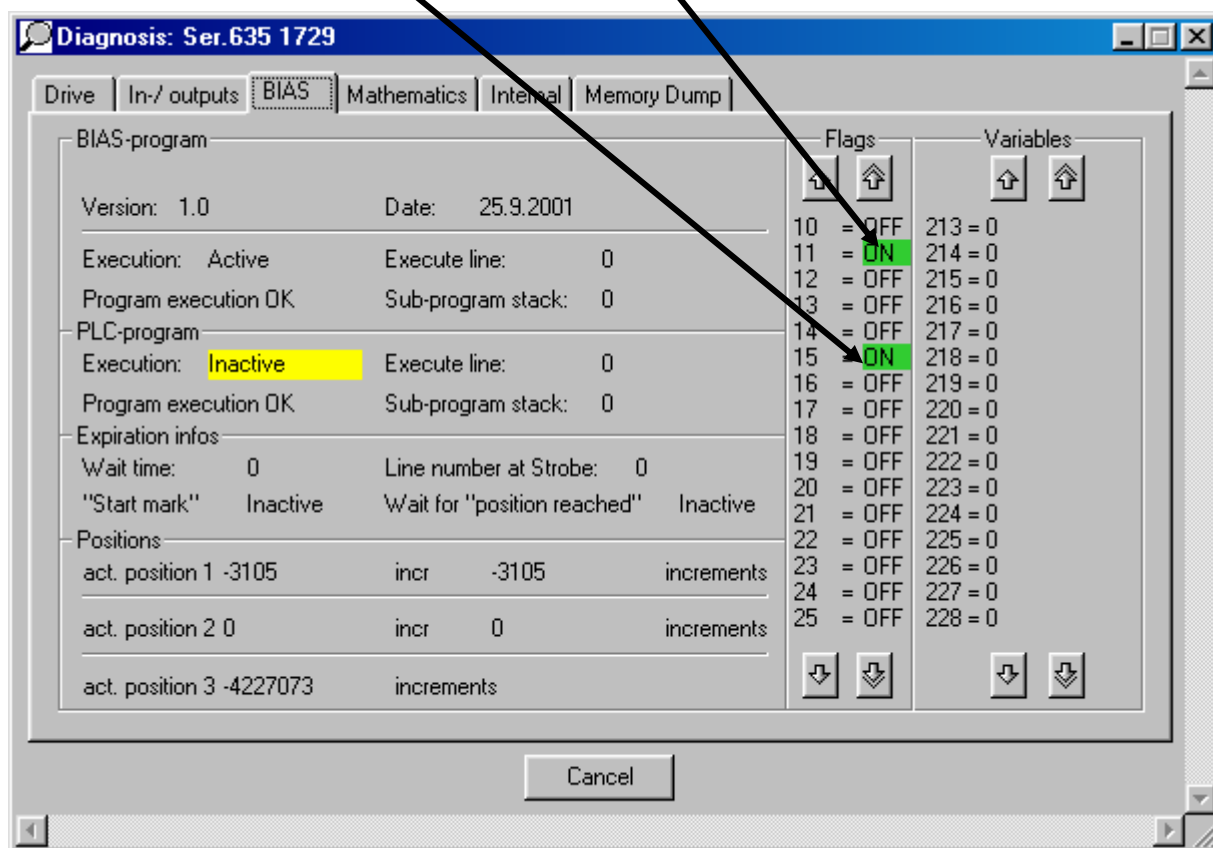
1. Interconnect the units with CAN- connecting cable.
2. Switch on 24V DC on both units.
3. Connect terminal 15 of the CAN - I/O module to 24V DC.
4. loading the following programme sequence in the BIAS programme editor and you activate the drive.

ProgStart:

0 Flag 11 = Flag 15

1 Jump 0

5. Check the applied signal with the EASYRIDER diagnostics → screen BIAS diagnostics. Flag 15 = ON and voltage on terminal 11.



Version	Modification	Chapter	Date	Name	Comment
V01.40SA99	new		10.10.1999	T. Saladin	1st - Version
V0201	Output function 4/4 Example - installation separation German / English	3 8 all	24.09.2001	T. Saladin N. Dreilich	New ET - Format

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