FIFE GUIDING SOLUTIONS

MAXCESS

FIFE

D-MAXE with OI-B/OI-N

Operating Instructions

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1 INTRODUCTION

About these operating instructions

These operating instructions describe the installation, commissioning, operation and maintenance of the D-MAXE system with an operator interface OI-B/OI-N and provide important instructions for proper use.

These operating instructions are intended for both the system construction master as well as the operator who uses the D-MAXE system in production. The Operating Instructions must be read and applied by everyone who is responsible for commissioning, operating or maintaining the D-MAXE systems.

The Operating Instructions must be carefully kept and must always be available throughout the service life of the D-MAXE system.

Note:
These Operating Instructions describe basic operation of the D-MAXE systems. Additions and customer-specific adaptations are found in Supplementary Operating Instructions in the system documentation.

If the customer's system consists of multiple D-MAXE Controllers and/or operator interfaces, the instructions in these Operating Instructions must be performed separately for each module.

Translation of the original Operating Instructions:
These Operating Instructions are a translation. The original Operating Instructions were composed in German.

Proper use

The D-MAXE System is used to control systems such as:

- Control roller systems
- Unwind and rewind systems
- Slitting systems
- Tool positioning systems

The D-MAXE system works in different functions:

- Edge guiding
- Center guiding
- Line guiding (edge or center guiding on printed lines).

The D-MAXE system must only be used in accordance with its intended purpose and must be in flawless technical condition. Unauthorized conversions or changes to the D-MAXE system are not permitted.

Any other use of the D-MAXE system requires the prior approval of Maxcess.

Note:
The modules of the D-MAXE system must not be opened. If a module is opened, no claims under the warranty will be honored.

Options

Customer-specific programming and different sensors and actuators make it possible to adjust the D-MAXE system to a wide variety of applications.

Improper use

- Operation outside of the technical specifications is not permitted.
- Operation in areas where there is a danger of explosions is prohibited.
- Any use other than the designated use is not permitted.

Operating principle

The D-MAXE system consists of various modules that can be combined depending on the specific application.

Modules

Figure 1.1: Controller, D-MAXE 1 and D-MAXE 2

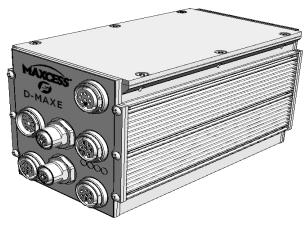


Figure 1.2: Controller, D-MAXE 3

Figure 1.3: Operator interface

D-MAXE Controllers

- integrated into a guiding system or for wall mounting
  - D-MAXE 1 Controller:
    for the drive of a control loop
  - D-MAXE 2 Controller:
    For the drive of two independent control loops
    or
    one control loop with automatic sensor positioning
  - D-MAXE 3 Controller:
    For the drive of three independent control loops or combinations of control loops with automatic sensor positioners

D-MAX Operator interfaces

- Operator interface for desk installation or wall mounting
  - Operator interface OI-B: basic version for operating D-MAXE Controllers
  - Operator interface OI-N: network version
    Depending on operating equipment, from one to four D-MAXE Controllers and one additional network device

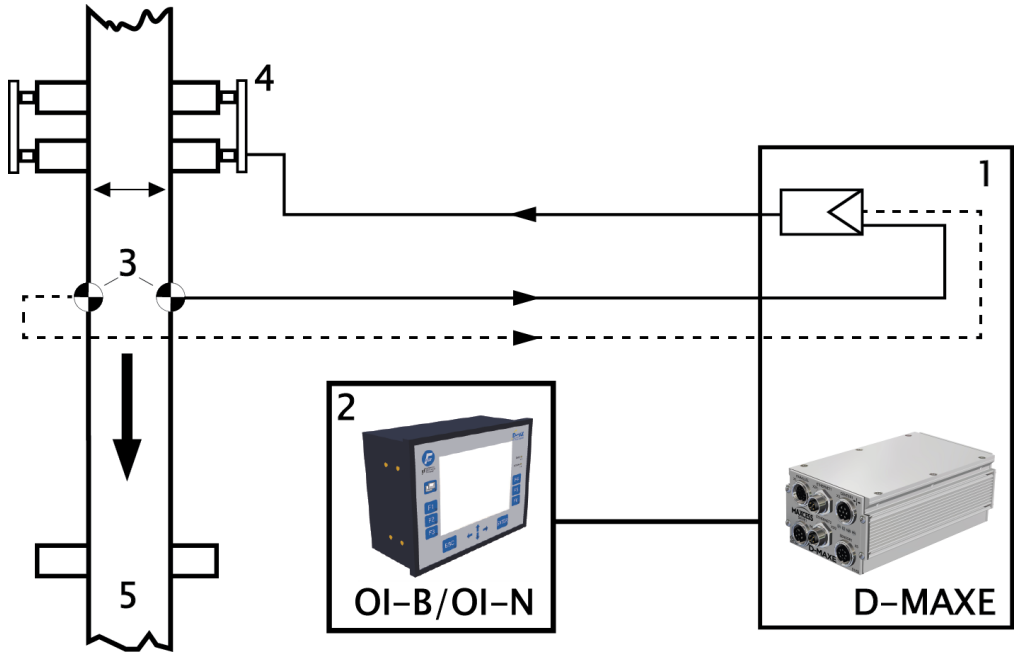
    Option:
    a CompactCom interface (fieldbus) for communication with Programmable Logic Controllers (PLCs)

- PC-based virtual operator interface

Operating principle

Figure 1.4 shows an example of edge guiding (optionally center guiding) with a D-MAXE system.The D-MAXE system consists of a D-MAXE 1 Controller **(1)** and an operator interface OI-B **(2)**.

A sensor **(3)** senses the web edge of a material web and determines the current position of the web. The D-MAXE 1 Controller receives this information and guides the material web **(5)** by means of an actuator **(4)** so that it is always in the desired target position.



1 D-MAXE 1 Controller
2 Operator interface OI-B/OI-N
3 Sensor(s)
4 Actuator (offset pivot guide)
5 Material web
--- optional

Figure 1.4: Operating principle of a control loop with modules of the D-MAXE system

2 SAFETY INSTRUCTIONS

Important information

Problem-free and reliable operation of the D-MAXE system requires that the D-MAXE system is

- properly shipped and stored,
- properly mounted and placed in operation,
- properly used and carefully maintained.

Proper operation and careful maintenance will ensure a long service life for the D-MAXE system.

Only persons who are acquainted with the installation, commissioning, operation and maintenance of the system and who possess the necessary qualifications for their activities may work on the D-MAXE system.

Please note the following:

- The content of these operating instructions
- The safety instructions printed on the unit
- The requirements of the machine manufacturer
- National, state and local requirements for accident prevention and environmental protection

Information about safety instructions

The safety instructions and symbols described in this section are used in these Operating instructions. They are used to avoid possible dangers for users and to prevent material damage.

SIGNAL WORD
Source of danger and its results.

⇨ Avoiding dangers

The signal word **WARNING** refers to the danger of moderate to sever bodily injuries.

The signal word **CAUTION** refers to the danger of slight to moderate bodily injuries or material damage.

Symbols

Warning/caution - dangerous area
Reference to general hazards that may result in bodily injuries or damage to the device

Warning/caution - danger due to crushing
Refers to danger of injury caused by crushing

Warning/caution - danger due to cutting
Refers to danger of injury caused by cutting

Additional symbols

- This endash is followed by an enumeration.
- This dot is followed by a prompt to do something.

Note:
Reference to important information.

Preventing hazards

Installation and commissioning

- Damaged modules of the D-MAXE system must not be installed or placed in operation.
- Assembly work must be performed while the machine is stopped and protected against being turned on again.
- All assembly tasks must only be performed when there is no electrical power in the system.
- The D-MAXE system must only be placed in operation if all components are securely assembled.
- Electrical connections on the modules of the D-MAXE system must only be made or disconnected when the electrical power is turned off. Failure to follow these instructions may result in damage to the D-MAXE system.
- The parameters specified in Section *Technical Data* must be observed.

- Only replacement parts that have been approved by Maxcess may be used.
- No changes may be made to the D-MAXE system.
- Electrical lines must not be subjected to any mechanical loads.

Operation

- Danger of injury by crushing
  Do not place your hands on or near moving parts (rollers, material web, etc.) during operation.

- Danger of injury due to cutting on the edge of the material web
  Do not place your hands on the edge of the (moving) material web during operation.

- D-MAXE system modules damaged during operation must be decommissioned.

Maintenance

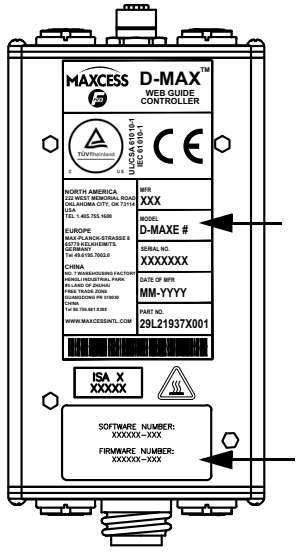
- Danger of injury by crushing
  Maintenance work must only be performed on the D-MAXE system when the power is turned off, the machine is stopped, and it is protected against being turned back on.

3 INSTALLATION

Transport and storage

- Modules of the D-MAXE system must be secured to prevent them from slipping during transport.
- The modules must be kept cool, clean and dry.
- Operator interfaces OI-B/OI-N must not be stored close to powerful magnetic fields. The electronic components of the device could be damaged.

Scope of delivery



- D-MAXE Controller
  The model designation, serial number, and the firmware and software numbers are on the rating plates on the housing.
- Operating Instructions

Option

- Operator interface OI-B/OI-N
  The model designation, serial number, and the firmware and software numbers are on the rating plates on the housing.
- Assembly bracket for wall mounting of the D-MAXE Controller
- Assembly bracket for wall mounting of the operator interface
- Fastening material for installation in panel

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Mounting

WARNING
All assembly tasks on the D-MAXE system must be performed when there is no electrical power in the system.

Assembly tasks and mechanical settings must only be performed when the machine has been stopped and secured from being turned on again.

Installation location of D-MAXE Controller

- Protection class: IP54
- Operating temperature: 0°C ... 60°C (see *Technical Data, page 11-1*).
- Relative humidity: 10% to 90% non condensing
- Operating altitude above sea level: maximum 3000m
- On a fixed machine part or on a wall
- Not in places where there is a risk of explosions.

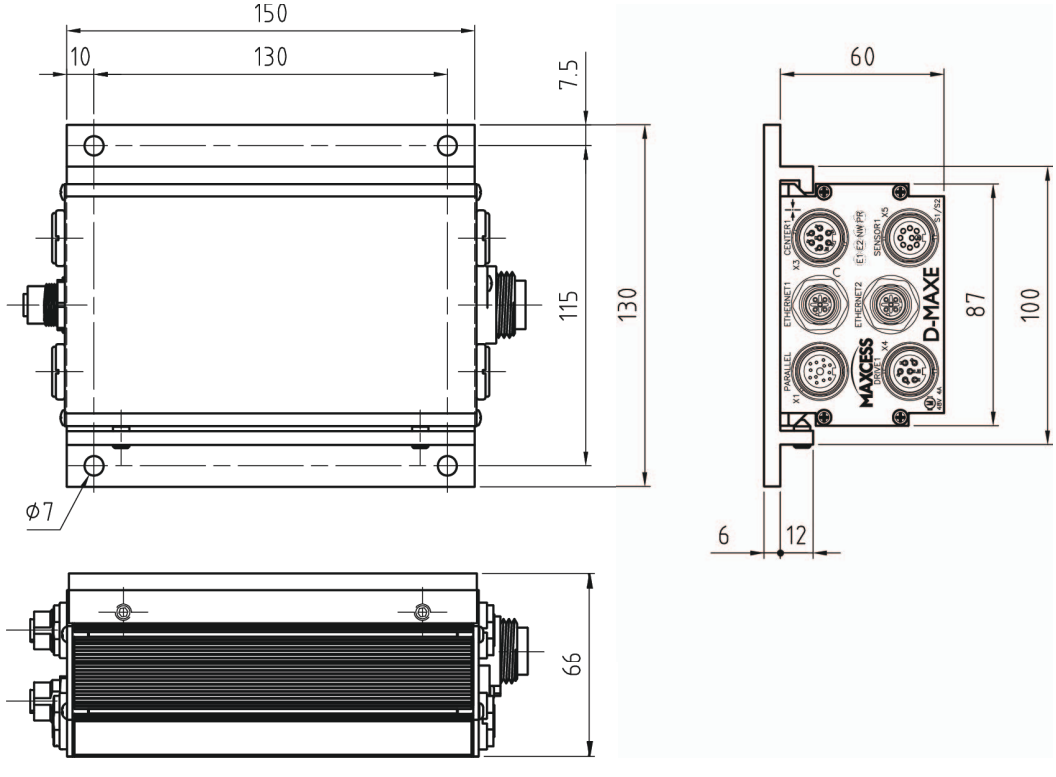


Figure 3.1: Dimensions of the D-MAXE 1 and D-MAXE 2 controllers with assembly bracket

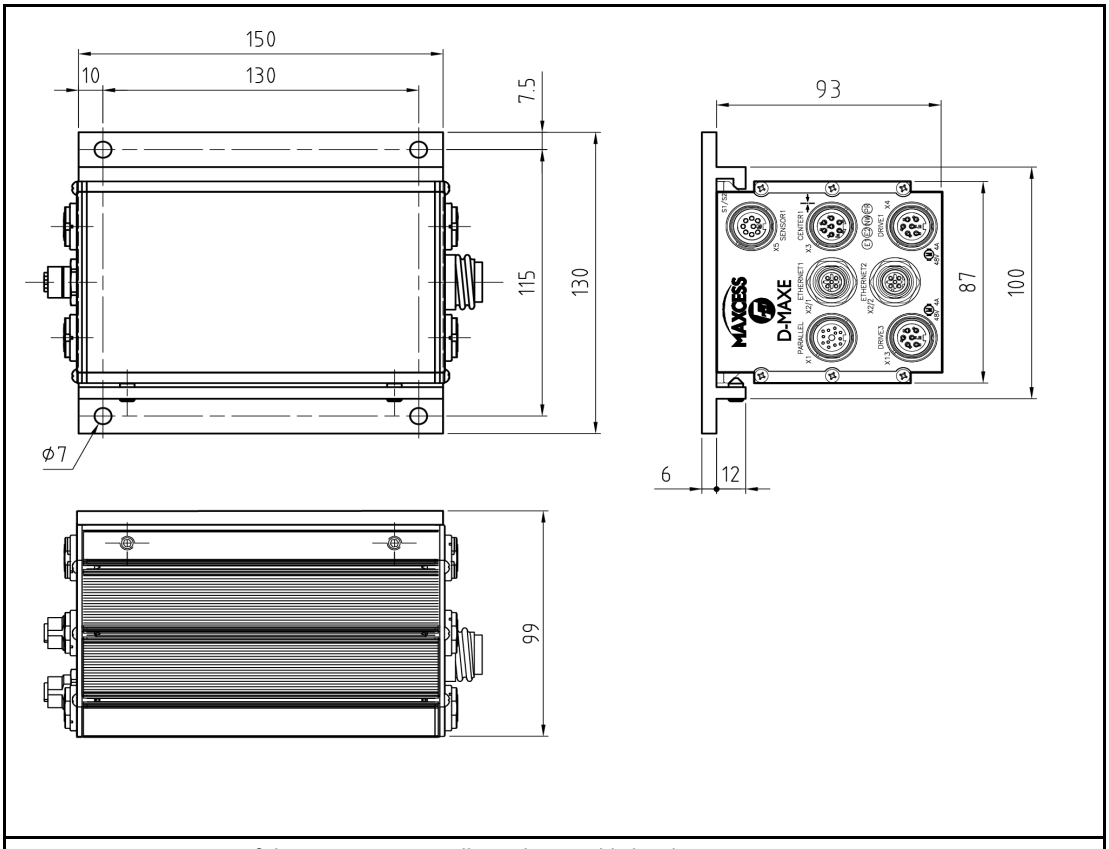
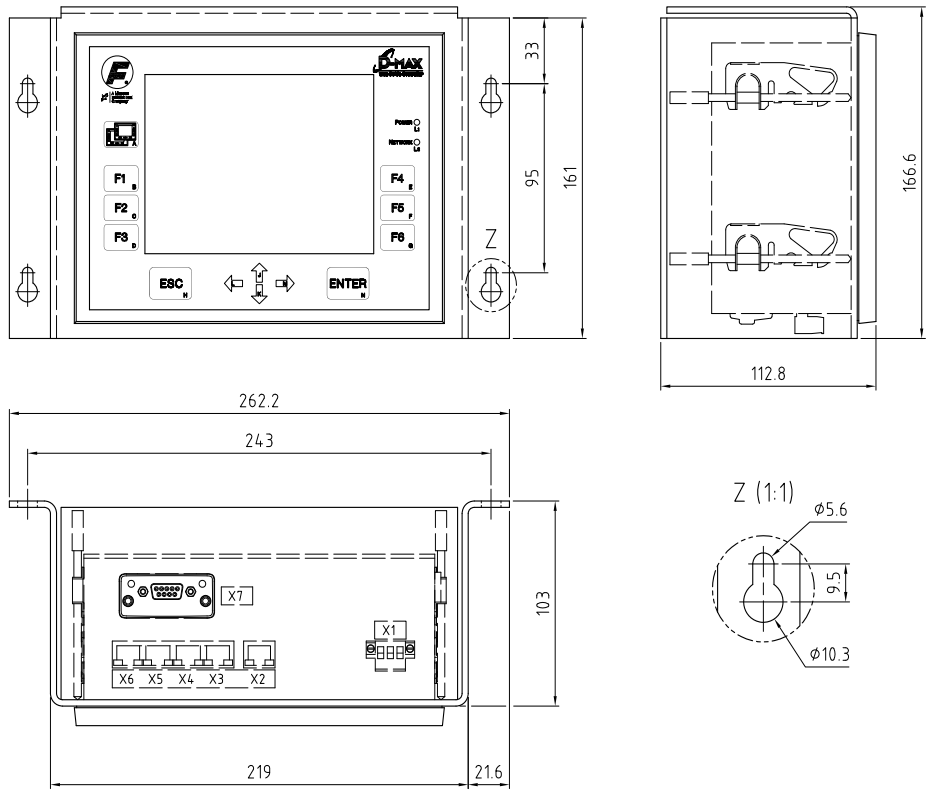


Figure 3.2: Dimensions of the D-MAXE 3 controller with assembly bracket

Installation location of D-MAX operator interface OI-B/OI-N

- Protection class: IP64
- Operating temperature: 0°C ... 60°C
- Relative humidity: 10% to 95% non-condensing
- Operating altitude above sea level: maximum 3000m
- On a fixed machine part or on a wall
- Protect from vibrations
- Do not place close to powerful magnetic fields:
  The electronic components may be damaged.
- Protect from falling objects:
  The operator interface can be damaged or an unintended switching process may be triggered.



- Cable output optionally right or left
- Cable length: 360mm

Figure 3.3: Dimensions of the D-MAX operator interface OI-B/OI-N assembly bracket

Mechanical fastening of D-MAX operator interface OI-B or OI-N

- Panel mount installation (see *figure 3.6*) or
- With an assembly bracket (optional) for wall mounting (see *figure 3.3*)

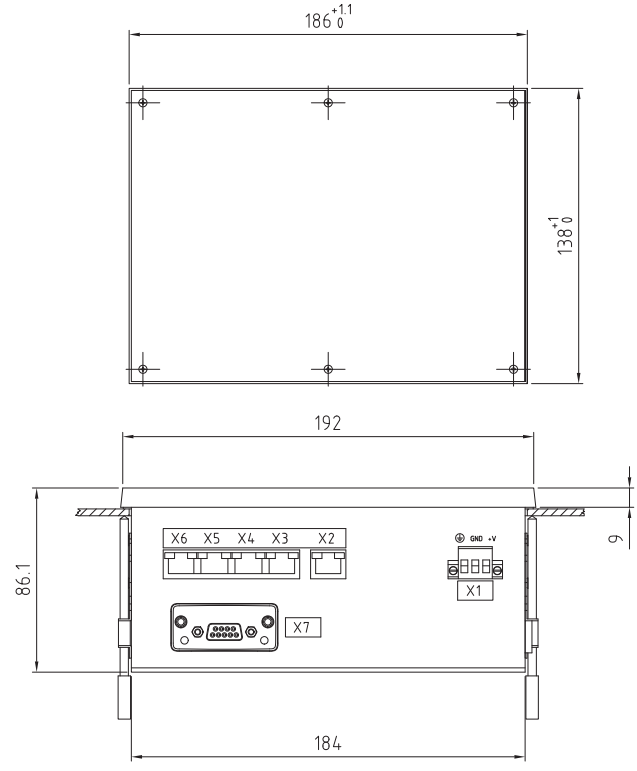


Figure 3.4: Dimensions of the D-MAX operator interface for panel installation and switch panel cut-out

Note:
If a plug-in unit is present on the operator interface on the X7 connection, it may not be possible to push the operator interface through the cut-out in the switch panel.

If this happens, follow these steps:

- Loosen the fastening screws on the plug-in unit with a TORX 8 screwdriver
- Carefully pull the plug-in unit out of the shaft by the fastening screws
- Insert the operator interface into the switch panel cut-out and assemble it with the fastening material
- Carefully insert the plug-in unit back into the shaft
- Tighten the mounting screws with the TORX 8 screwdriver. A tightening torque of 0.25 Nm is recommended

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Electrical connection

CAUTION:
Electrical connections on the D-MAXE system should always be made or disconnected while there is no electrical power in the system.

Failure to follow these instructions may result in damage to the D-MAXE system.

Emergency Stop

Observe the “D-MAX Supplementary Operating Instructions - Safe shutoff of electromechanical actuators driven by a D-MAX or D-MAXE Controller” in the system documentation.

Power supply of D-MAXE Controller

The D-MAXE Controller has no power switch. Because of this, the power supply of the D-MAXE Controller must be switched on and off via the machine's power distribution.

The D-MAXE Controller must be connected to the power supply according to the information supplied at connector X6 of the controller (see *figure 3.6* and *figure 3.7*).

Power supply of D-MAX operator interface OI-B or OI-N

D-MAX operator interfaces OI-B and OI-N are connected to a power supply (see *figure 3.5*).

Connecting the sensors/ actuators

- Only sensors and actuators approved by Maxcess may be used.
- The technical data for sensors and actuators must match the connection data for the D-MAXE system (see *Technical Data, page 11-1*).
- Relevant operating instructions must be observed for installation and operation of sensors and actuators.
- Sensors and actuators must be connected to the D-MAXE system according to the system diagram in the system documentation.

Note:
Ensure that two wires from the power supply line are connected to the D-MAXE controller with a power supply in the permitted range from 24V to 48V.

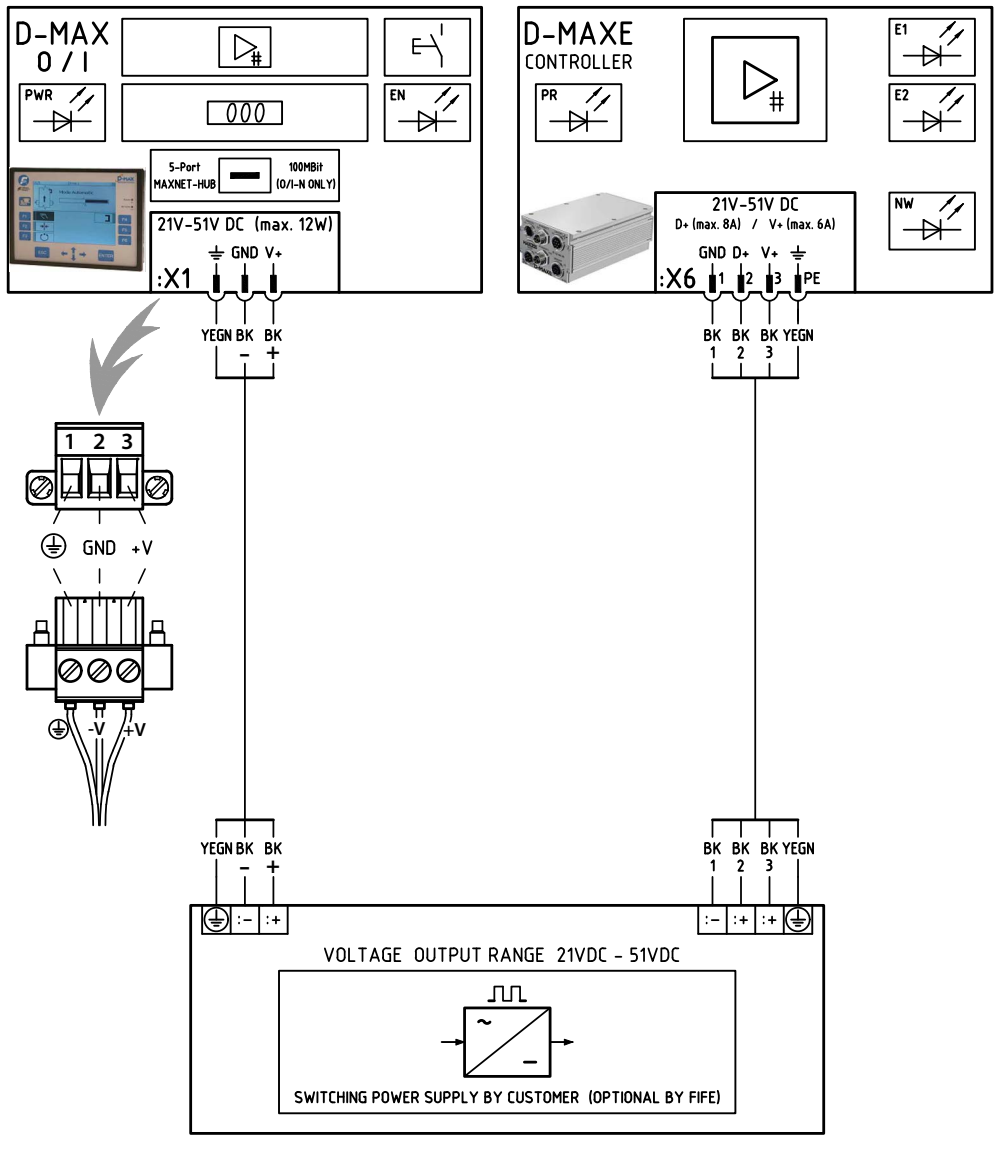

Figure 3.5: Power supply of D-MAXE modules

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Connections on the D-MAXE 1 Controller

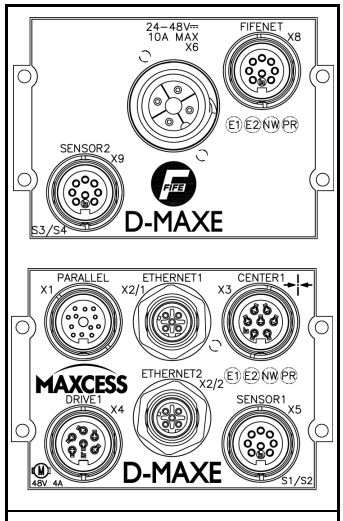

Figure 3.6: D-MAXE 1 Controller

Connection	Designation
X1	Parallel inputs/outputs
X2/1	Ethernet
X2/2	Ethernet
X3	Servo-Center transducer 1/Encoder 1
X4	Drive 1
X5	Sensor 1 (S1/S2)
X6	Power supply voltage
X8	FifeNet/ OI-TS
X9	Sensor 2 (S3/S4)

For technical details and additional information, please consult Section *11 Technical Data .*

Connections on the D-MAXE 2 Controller

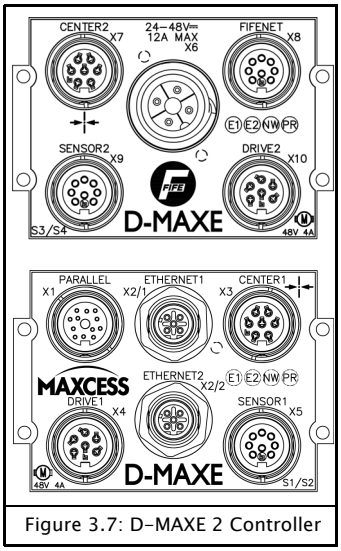

Figure 3.7: D-MAXE 2 Controller

Connection	Designation
X1	Parallel inputs/outputs
X2/1	Ethernet
X2/2	Ethernet
X3	Servo-Center transducer 1/Encoder 1
X4	Drive 1
X5	Sensor 1 (S1/S2)
X6	Power supply voltage
X7	Servo-Center transducer 2/Encoder 2
X8	FifeNet/ OI-TS
X9	Sensor 2 (S3/S4)
X10	Drive 2

For technical details and additional information, please consult Section *11 Technical Data .*

Connections on the D-MAXE 3 Controller

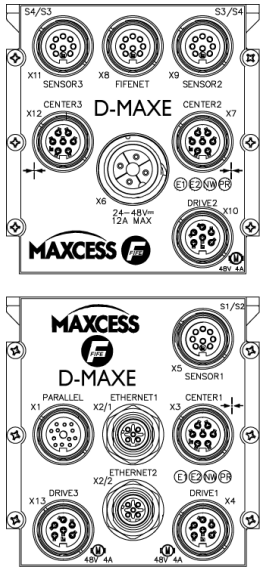

Figure 3.8: D-MAXE 3 Controller

Connection	Designation
X1	Parallel inputs/outputs
X2/1	Ethernet
X2/2	Ethernet
X3	Servo-Center transducer 1/Encoder 1
X4	Drive 1
X5	Sensor 1 (S1/S2)
X6	Power supply voltage
X7	Servo-Center transducer 2/Encoder 2
X8	FifeNet/ OI-TS
X9	Sensor 2 (S3/S4)
X10	Drive 2
X11	Sensor 3 (S4/S3)
X12	Servo-Center transducer 3 / Encoder 3
X13	Drive 3

For technical details and additional information, please consult Section *11 Technical Data .*

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LEDs on the D-MAXE Controller

Additional information about error messages that are displayed

LED	Status	Indicates
E1 (X2/1)	Off	No Ethernet connection
	Green or Green flashing	Ethernet connection detected
	Yellow	Either a 10mbps connection or a half-duplex connection is recognized
E2 (Ξ2/2)	Off	No Ethernet connection
	Green or Green flashing	Ethernet connection detected
	Yellow	Either a 10 mbps connection or a half-duplex connection is recognized
NW	Off	No external device is connected to connection X8
	Green	External device recognized at connection X8 (e.g. an operator interface OI-B/OI-N)
PR	Off	No power supply
	Red	Power supply voltage too low, internal voltage outside tolerance or internal temperature too high
	Green	Power supply and temperature OK
	Yellow	No motor voltage

may be found in Section *Troubleshooting, page 10-1*.

Connections on the operator interface

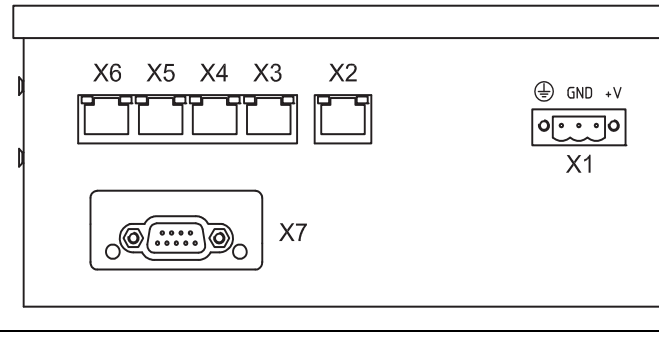

Figure 3.9:Connections on operator interface OI-N

Connection	OI-B	OI-N	Description
X1	x	x	Power supply voltage
X2	x	x	Ethernet Port
X3	-	x	Ethernet Port
X4	-	x	Ethernet Port
X5	-	x	Ethernet Port
X6	-	x	Ethernet Port
X7	-	Optional	CompactCom interface *

x Connection present
- Connection not present
* CompactCom interface (fieldbus) for communication with PLCs
(Information about the interface may be found in "Supplementary Operating Instructions" in the system documentation.)

For technical details and additional information, please consult Section *11 Technical Data* .

MAXNET addresses

- MAXNET is a proprietary protocol used for communication between D-MAXE Controllers and D-MAXE operator interfaces.
- The MAXNET address of the D-MAXE Controller must be different than the addresses of other controllers on the network (addresses 1 to 31).
- The MAXNET address of the operator interface is permanently set in the factory and cannot be changed. Generally it is set to 0, except when the operator interface is used as a Gateway (X7).

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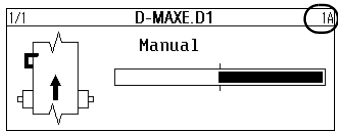
4 OPERATION

Precondition

Commissioning of the D-MAXE system must be performed as described in Section *Commissioning, page 6-1* of these Operating Instructions with successful completion.

Note



The placeholders listed here are used in the explanations below:

x

Placeholder "x“ (in the example x = 1) is the operating mode currently selected in the system (see *Menu identification, page 4-8* and Section 6 page *4-4*).

y

Placeholder "y" (in the example y = A) is the job currently selected in the system.

Safety instructions

While the D-MAXE system is in operation, the following safety instructions must be observed.

WARNING:
During operation, do not touch or reach close to moving parts (rollers, web).

There is a danger of being crushed.

WARNING:
There is a danger of being cut by the web edge due to the web material and/or the movement of the web itself.

User interface

The structure of the D-MAX operator interface's user interface is shown in *Figure 4.1*. The D-MAX operator interface consists of 13 keys, a green display and LED displays.

Note:
The user interface described below applies to OI-B and OI-N operator interfaces as well as the virtual operator interfaces.

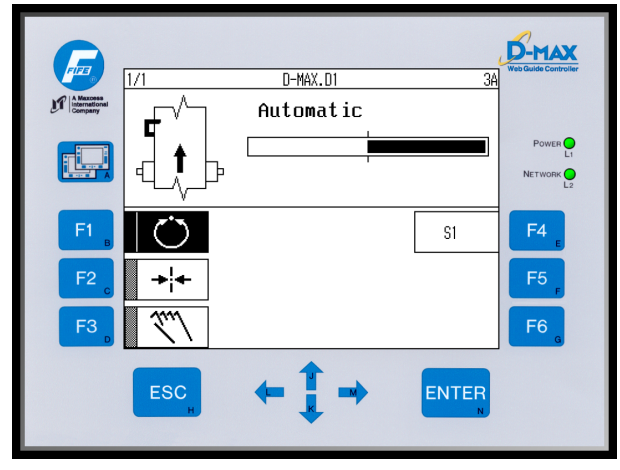


Figure 4.1: User interface

LED displays on the operator interface OI

LED	Status	Indicates
L1* Power	Off	No power supply.
	Green	Power supply and temperature OK
	Green flashing	Power supply voltage to low, internal voltage outside tolerance or internal temperature too high
L2* Network	Off	No connection
	Green	Ethernet connection detected

* not present on virtual operator interface

Additional information about error messages that are displayed may be found in Section *Troubleshooting, page 10-1*.

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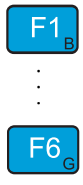
Keys and their functions

	Key designation	User level	Menu level
	A key	- Switch between D-MAXE "devices" that are present in the network - If the key is held down for longer than 2 seconds, a list appears with available "devices"	---
	F1 key . . . F6 key	- Function is determined by graphic in the display	
	ESC key	---	- Cancel entry and exit menu - Switch to the higher menu level
	Up-Arrow	---	- Move up in a menu list - Numeric entries in menus
	Down-Arrow	---	- Move down in a menu list - Numeric entries in menus
	Right-Arrow	- Automatic mode: Move guidepoint - Manual mode: Move drive	- Select digit for numeric entries - Mark an entry in a list
	Left-Arrow	- Automatic mode: Move guidepoint - Manual mode: Move drive	- Select digit for numeric entries - Remove the mark in a list
	Enter key	- Switch to menu level	- Switch to lower menu level - Enable the menu for processing. - Save entries

Display - user level

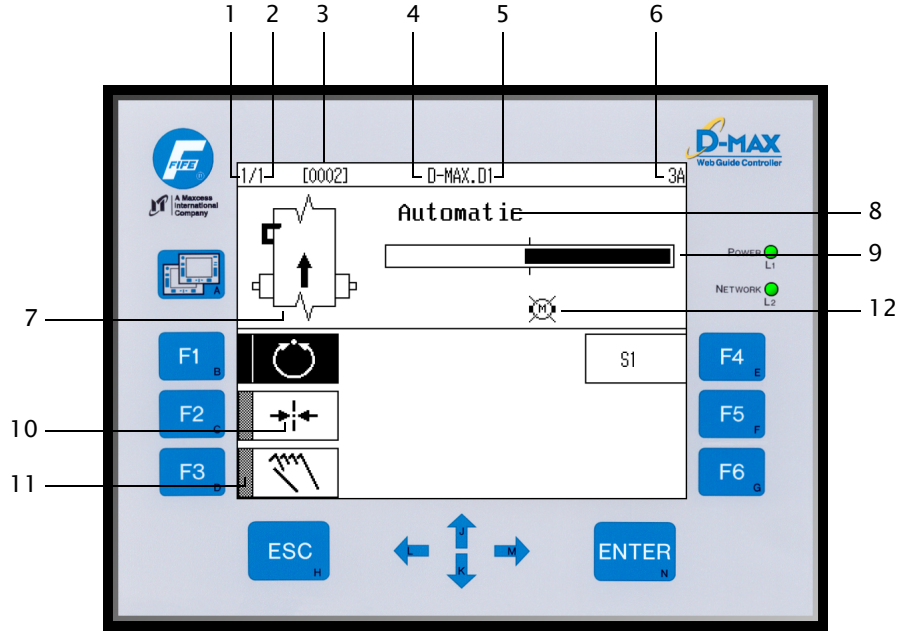


Figure 4.2: D-MAX operator interface on user level

Status line

1 Shows the currently selected D-MAXE Controller (permanently set MAXNET-ID)

2 Shows the currently selected "device" of the D-MAXE Controller:
1 - Drive 1
2 - Drive 2
30 - Drive 3
3 -Customer-specific system menu CM (if installed, for example an application in a "distributed system")
4 -operator interface menus
5 -Gateway (if installed)

3 Status displays (see item *12 Display of status symbols, page 4-5*)

4 Shows the name of the D-MAXE Controller (can be edited, see *Menu 1y.7.1 Names, page 7-46*)

5 Shows the name of the selected "device" (can be edited, see *Menu 1y.7.1 Names, page 7-46*)

6 Menu identification (see *Menu identification, page 4-8*)

If "*" appears before the menu identification, operation can be restricted with active *remote control*.
If "(*)" appears before the menu identification, *remote control* is locked if present.

Operating area

7 The graphic (bitmap) shows the processor and drive selected for the current situation (not in "Servo-Center" operating mode)

8 The currently selected operating mode

9 In "Automatic" and "Manual" modes, the bar graph shows the signal level of the active sensor
In "Servo-Center mode, the bar graph shows the signal level of the Servo-Center transducer

10 A graphic next to the F1 to F6 keys identifies the active functionality of the corresponding keys

11 A narrow rectangle between the key and graphic identifies the status of a key:
Filled rectangle: The function is active
Hatched rectangle: Key is available for use
Empty rectangle: Key disabled because a *Remote Control* is currently running this function
No rectangle: Key is not enabled

12 Display of status symbols
The following icons can be displayed at this position. The status displays appear at position 3.

[0001] Error display.
This icon appears if an error is detected on the selected "device".

[0002] No motor was detected or no motor is connected.

[0004] The motor current supply is outside the valid range.

[0006] Power feedback from motor (motor acting as generator)

[n/a] Motor at maximum current

[0100] The motor is locked.

[8000] The motor is actively locked in "Manual" mode (hardlock).

[0010] ASC is activated

[0020] ASC is triggered.
This icon appears if the ASC function has been activated and triggered on the selected drive.

[0030] ASC is triggered.
These icons appear if the ASC function has been activated and triggered on the selected drive and the motor has been blocked.

[0200] The limit values of the encoder have been reached.

[0400] The optional oscillator 'OSC' is available in the selected job.

[0800] The optional controller 'PIC' is available in the selected job.

[4000] RCAL is active on the selected drive.
This symbol appears between the time when the first and second key on the RCAL-20/26 is pressed.

[0008] SGC: Guiding depends on the web speed.
If this symbol is flashing, the web speed is equal to 0 and no guiding is being performed.

[1000] The selected "device" is expecting MAXNET data from a device, but does not receive any data. The device that should send MAXNET data is either not connected or not turned on.

[2000] The selected "device" expects data from a Gateway, but does not receive any data, since no data can be received on the Gateway.

Display - menu level

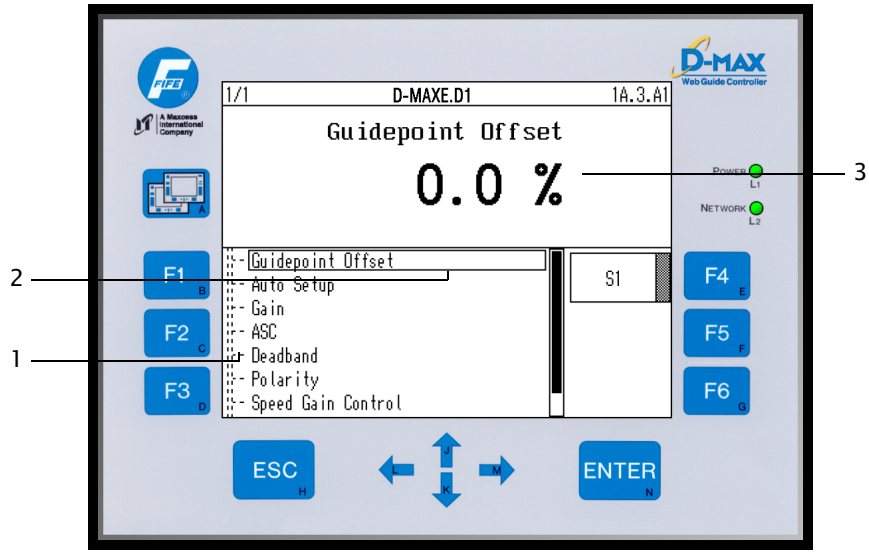


Figure 4.3: D-MAX operator interface on menu level

Menu area

1 Contains the menu structure in which the user moves about

2 The selected menu is marked by a square

3 The selected menu appears with the corresponding data in the information area

Menu structure

For more information on the menu structure of the D-MAXE system, refer to sections *Controller menus, page 7-1* and *Operator interface menu structure, page 13-1*.

Depending on the specific application, the menu structure of D-MAXE Controller is specially programmed for customer requirements. Therefore it is possible that certain parts of the menu structure will not be present in the customer's specific application or additional menu items may appear.

All menus of the D-MAXE Controller can be reached in "Manual" mode. This number is limited in "Automatic" and "Servo-Center" modes.

Menu identification

Each menu has its own identification. This makes it possible to retrace every step in the control tree of the D-MAXE system precisely (see *Fig 4.4*).

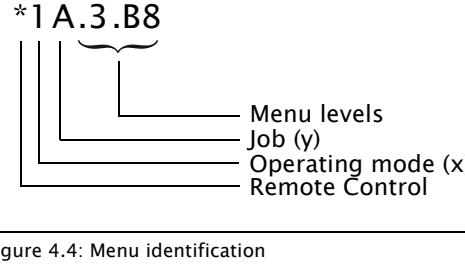


Figure 4.4: Menu identification

Remote Control: * - Remote Control active

(*) - Remote Control locked
(see *1y.2 Remote Control, page 7-2*)

Operating mode (x): 1 - Manual
2 - Servo-Center
3 - Automatic

Job (y): Identifies the active job in the selected "device"

Note:
Because of the possibility of customer-specific programming, individual jobs cannot be present or cannot be used differently than listed in the table. Customer-specific software adjustments of this type are described in the "Supplementary Operating Instructions" for the D-MAXE system and are included in the system documentation.

	Job	Connection	Type of Guiding
A	S1	X5/1	Edge guiding*
B	S2	X5/2	Edge guiding*
C	S3	X9/1**	Edge guiding*
D	S4	X9/2**	Edge guiding*
E	S1 - S2	X5/1&2	center guiding or slave guiding
F	S3 - S4	X9/1&2**	center guiding or slave guiding
G	S1 - S3	X5/1 & X9/1**	center guiding or slave guiding
H	S2 - S4	X5/2 & X9/2**	center guiding or slave guiding
J	X5	X5/2	Line center guiding
K	X9	X9/2**	Line center guiding
L	X5	X5/1	Line edge guiding
M	X9	X9/1**	Line edge guiding

* It is possible that the sensor being used is already returning a center signal. In this case, center guiding will be performed.

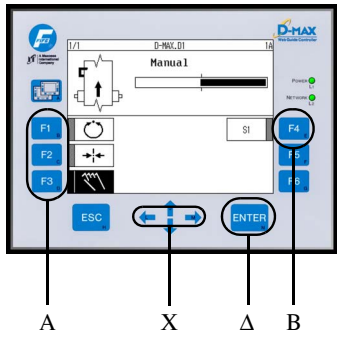
** On a D-MAXE 3, S3 is connected to both X9/1 and X11/2, and S4 is connected to both X11/1 and X9/2 and will generally be referred to as X11/1.

If only the first two places appear in the status line (for example, 3A), the D-MAXE system is on the user level.

Menu levels:Identifies the position of a menu within the structure

If a letter appears, it identifies the job selected for the display.

User level



All user functions required for normal operation of the D-MAXE system appear on the user level:

A Select operating modes

B Select jobs (Types of Guiding)

C Move drive / move guidepoint

D Switch to menu structure

The D-MAXE system is completely controllable with the corresponding keys on the operator interface. These user functions are described in the following sections.

The D-MAXE system can also be operated via the

- X3 parallel interface (see *Parallel input matrix, page 11-6*) or a fieldbus
- interface on the user level.

Using appropriate customer-specific programming, additional special user functions can be assigned to keys F4 through F6. These customer-specific additions to user functions are described in "Supplementary Operating Instructions" for the D-MAXE system and in the system documentation.

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Selection of "devices"

The A key is used to select individual "devices" present on the network, for example the D-MAXE Controllers and their drives as well as any customer-specific system menus (CM) or Gateways that may be present.

Fig 4.5 describes how controllers and drives are identified in the status line.

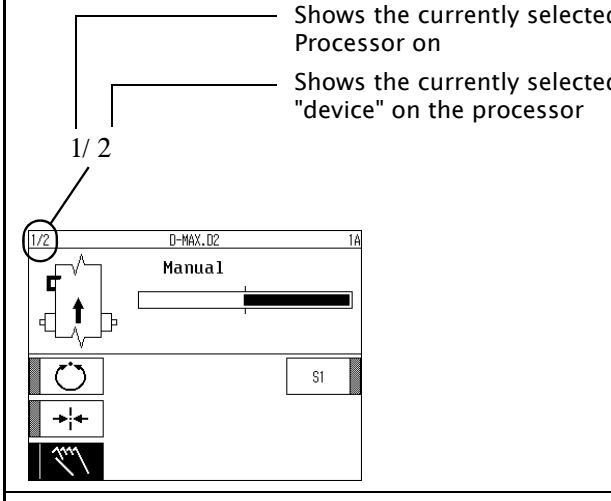
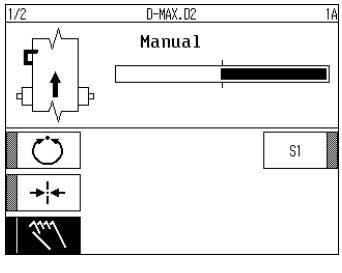


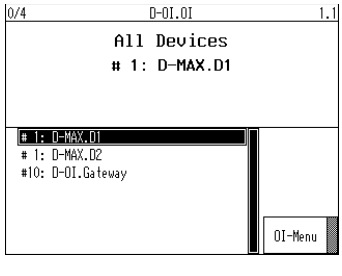
Figure 4.5: Identification in the status line

To select a specific "device", press the



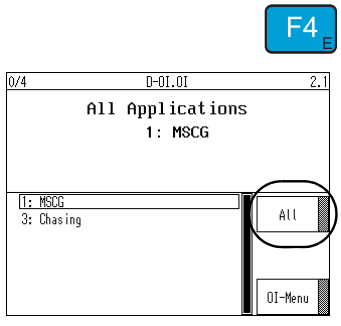
- **A** key until the desired menu appears,

or



- hold the **A** key for longer than 2 seconds.

  A list appears with all the "devices" present in the network from which the "device" may be selected.



Filtering

If the "devices" in the network are filtered and a "device" the user is searching for does not appear in the list, filtering can temporarily be turned off with the F4 key (see *Distributed system* on page *7-47* and *Application filter* on page *5-5*).

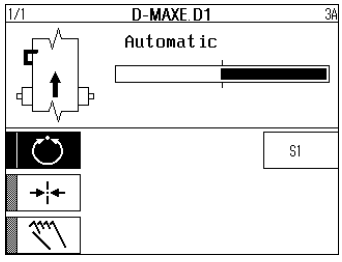
Automatic operating mode

Description

The web course is guided by an actuator based on sensor information.

Menu

- F1 key for "Automatic" menu (3y)



The bar graph identifies the position of the guidepoint.

Operator control options

The following control options are available in "Automatic“ mode.

Key	Description
	Switching between existing "devices" is possible
	Switch to "Servo-Center" mode
	Switch to "Manual" mode
	Offset of guidepoint is possible (if enabled in parameter *Menu 1y.6.3.1 Jog Enable, page 7-44*)
	Change of job is *not* possible
	Switch to menu level Only restricted menus are available.

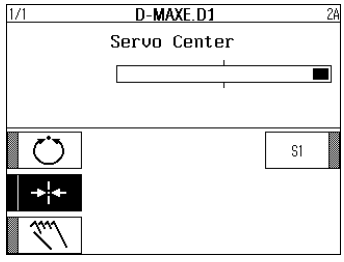
Servo-Center operating mode

Description

The actuator is moved to the mechanical center position depending on the Servo-Center transducer. Then the control rollers are aligned parallel to the rollers of the customer system.

Menu

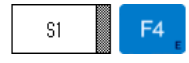
- F2 key for "Servo-Center“ menu (**2y**)



The bar graph identifies the position of the Servo-Center transducer's guidepoint.

Operator control options

The following control options are available in "Servo-Center“ mode.

Key	Description
	Switching between existing "devices" is possible
	Switch to "Automatic“ mode
	Switch to "Manual" mode
	Selection of job for "Automatic" mode possible
	Switch to menu level Only restricted menus are available.

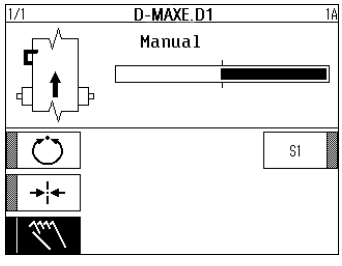
Manual mode

Description

There is no guiding of the web course. The settings of the D-MAX system can be changed.

Menu

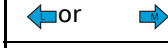
- F3 key for "Manual“ menu (**1y**)



The bar graph identifies the position of the guidepoint of the sensor selected with F4.

Operator control options

The following operating option are available in "Manual" mode.

Key	Description
	Switching between existing "devices" is possible
	Switch to "Automatic“ mode
	Switch to "Servo-Center" mode
	The drive can be moved
	The job can be selected
	Switch to menu level All menus are available.

Selection of "Jobs"

Description

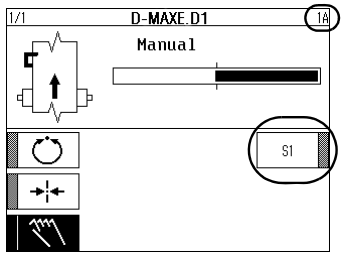
Jobs are types of controllers that are in principle available in a D-MAXE system. The table on page *4-9* is a list of possible controller types with their menu identifications that may be active in "Automatic" mode.

From the large number of possible controller types, customer-specific programming selects the controller types that have the required functionality for the customer's application and makes them available.

Menu

- F4 key

  It is only possible to select another job in the user level in "Manual" and "Servo-Center" modes.



The entry changes in the second place of the menu identification depending on the job selected.
(in Example A)

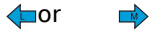
Shift guidepoint

Description

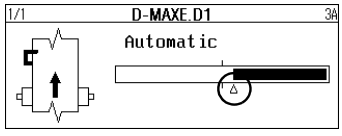
The guidepoint can be shifted in "Automatic" mode during ongoing operation.

Note:
This is only possible if the parameter has been set up appropriately in *Menu 1y.6.2 Job Enable, page 7-43*.

Menu

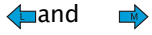


Move the guidepoint to the desired position with the arrow keys

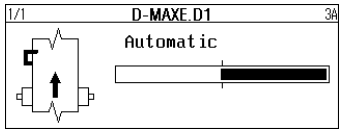


A triangle and guidepoint shift percentage appear under the bar graph at the point to which the guidepoint was moved.

Reset the guidepoint



- Press the arrow keys together to reset the guidepoint



The guidepoint is reset to 0%. The triangle under the bar graph disappears.

Note:
This parameter can also be set with menu 3y.3.y1 guidepoint offset or with *Menu 1y.3.y1 Guidepoint Offset, page 7-5*.

Menu level

The basic properties of the D-MAX system can be set for the relevant customer application in the menu level.

ENTER N

Press the Enter-key to exit the user level and switch to the menu level.

Information on operation in the menu level

The following input options are available in the menu levels.

Numeric entries

ENTER N

- Enable the desired menu for the entry
  (for example set the *amplification* parameter)

or

- Use the 'Right-Arrow' and 'Left-Arrow' keys to position the cursor under the digit you want to change

or

- Use the 'Up-Arrow' and 'Down-Arrow' keys to change the selected digit

ENTER N ESC H

- Save the entry with the Enter-key:
  The new setting is accepted into the system
  or
  Press the ESC-key to cancel the entry:
  The old settings are retained in the system

Sequences

Some menus are based on each other. These menus can only be processed in the indicated order.

ENTER N

- Enable the desired menu sequence
  (for example *calibration* of a sensor)

- Process the individual menus of the menu sequence

ENTER N or ESC H

- Save the entry with the Enter-key:
  The new setting is accepted into the system
  or
  Press the ESC-key to cancel the entry:
  The old settings are retained in the system

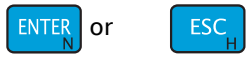
Selection lists

Some menus contain lists from which one or more entries (depending on a parameter) can be selected.

- Enable the desired menu for the entry
  (for example set the parameter *Allow offset*)

- Use the 'Up-Arrow' key and the 'Down-Arrow' key to mark (with a border) the entry in the list you want to select

- Use the 'Right-Arrow' key to activate the entry and the 'Left-Arrow' key to deactivate the entry



- Save the entry with the Enter-key:
  The new setting is accepted into the system
  or
  Press the ESC-key to cancel the entry:
  The old settings are retained in the system

5 OPERATOR INTERFACE MENUS

Notes

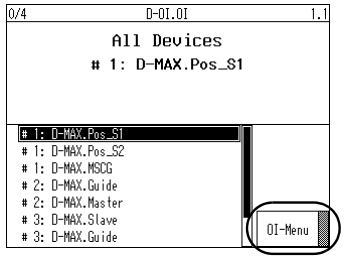
This section contains a description of menus that are needed to make settings for the operator interface itself.

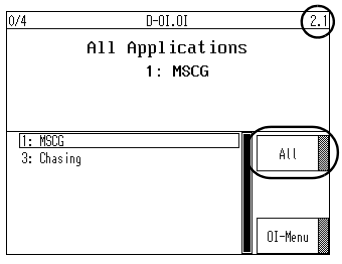
Section *Operator interface menu structure, page 13-1* contains an overview of all menus.

Conventions

The following conventions apply to the menus described here:

- Pressing the A key for longer than 2 seconds takes you to the "All devices" menu.
- Pressing the F6 takes you to the menu structure of the *OI menu* operator interface.





- Format of menu identification: b.a
- **a**
  If there are multiple "devices" in the D-MAXE system, the second place in the menu identification changes depending on the "device“ selected by the customer.
  (in the example a = 1)
- **b**
  If the parameters for a *distributed system* (see *7-47*) and the *application filter* (see *5-5*) are set up in a more complex D-MAXE system, the first place in the menu identification changes depending on the filter type selected (F4 key) (in the example b = 2):

  1 View of "All devices" on the network
  2 View of all main conditions (CM) of the applications
  3 View of all "devices" in an application

  All menus of the operator interface are described from the "All devices" view (b = 1).

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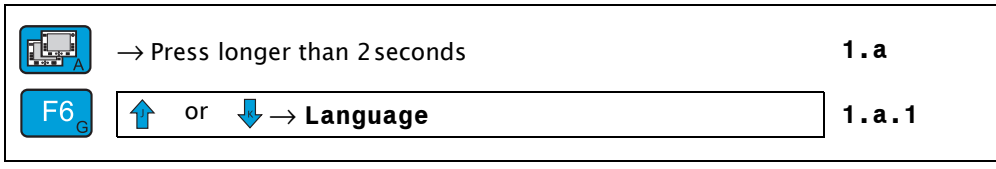
Menu 1.a.1 Language

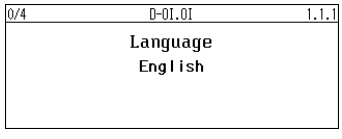
Description

The *Language* menu is used to set the desired language for menu guidance.

Menu

- Key sequence for menu **1.a.1:**

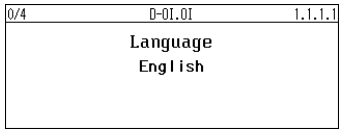




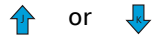
The current setting for the *Language* parameter is shown here.

- Enable the parameter for input

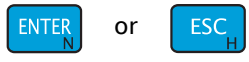
Input



Menu **1.a.1.2: Language**



- Select the desired entry in the list



- Save the entry or cancel

Menus 1.a.2 Control Options

This section describes menus that are used for the basic setup and assignment of the "devices" to be displayed.

These settings apply only to the relevant operator interface. They must be performed once for each operator interface present in the D-MAXE system.

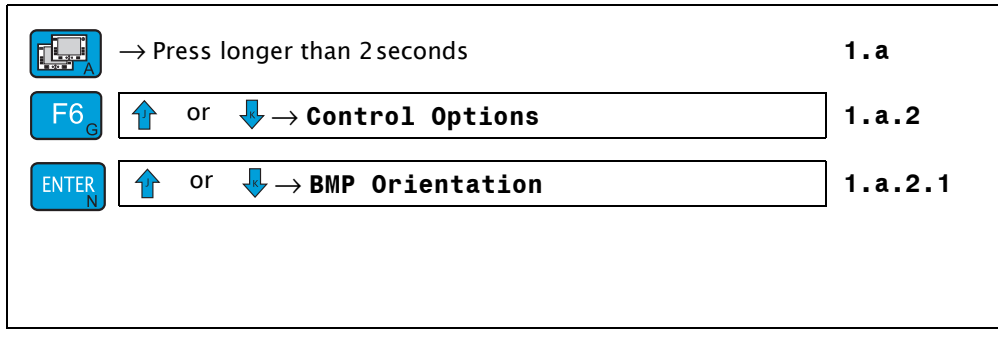
Menu 1.a.2.1 BMP Orientation

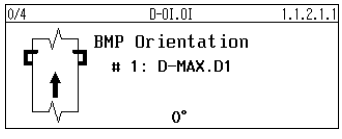
Description

The *BMP Orientation* menu is used to set the alignment of the graphic shown in the display (bitmap). This makes it possible to coordinate the installation position of the actuator in the customer system and the position of the operator interface.

Menu

- Key sequence for menu **1.a.2.1:**





The current setting for the *BMP Orientation* parameter is shown here.

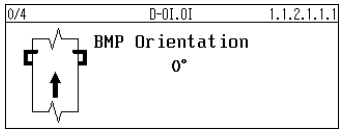
or

- Select the "device" in the list for which the *BMP Orientation* parameter will be set

ENTER N

- Enable the parameter for input

Input



Menu **1.a.2.1.1.1: BMP Orientation**

or

- Select the desired entry in the list

ENTER N or ESC H

- Save the entry or cancel

Menu 1.a.2.2
Application Filter

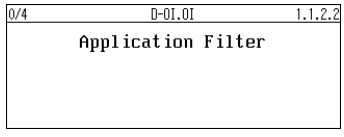
Description

You can use the *Application Filter* menu to configure the view of the operator interface to a "distributed system" (see *Menu 1y.7.5 Distributed System, page 7-47*).

Menu

- Key sequence for menu **1.a.2.2:**

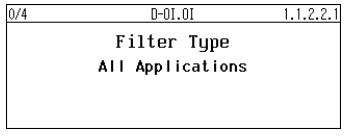
A	→ Press longer than 2 seconds	**1.a**
F6 G	or → **Control Options**	**1.a.2**
ENTER N	or → **Application Filter**	**1.a.2.2**



ENTER N

- Switch to the menus that describe the *Application Filter* parameter

Input



Menu **1.a.2.2.1 Application Filter**

- Select the desired *Filter Type*

  The following views (filter types) are possible on a "distributed system":

  All Devices:
  View of "All devices" on the network

  All Applications:
  View of all main conditions (CM) of the applications

  Selected Application:
  View of all "Devices" in an application

F4 E

Filtering can be turned off temporarily with the F4 key in menu "All Devices" (see *Selection of "devices", page 5-13*).

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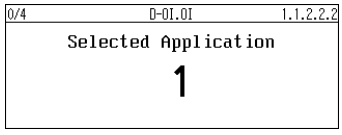


Menu **1.a.2.2.2 Selected Application**

- Enter the *Selected Application*

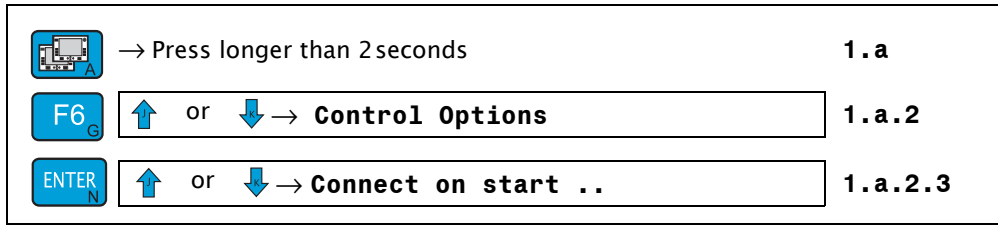
Menu 1.a.2.3 Connect on start ..

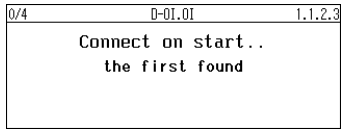
Description

You can use menu *Connect on start ..* to define which "device" will be displayed on the relevant operator interface when the D-MAXE system starts.

Menu

- Key sequence for menu **1.a.2.3:**





ENTER N

- Switch to the menus that describe parameter *Connect on start ..*

Input

Menu **1.a.2.3.1 Connect on start ..**

- Select between

  the "device" that was detected first by this operator interface

  or
  the "device" that was connected most recently with this operator interface

or

- Select the desired entry in the list

ENTER N or ESC H

- Save the entry or cancel

Menus.fm

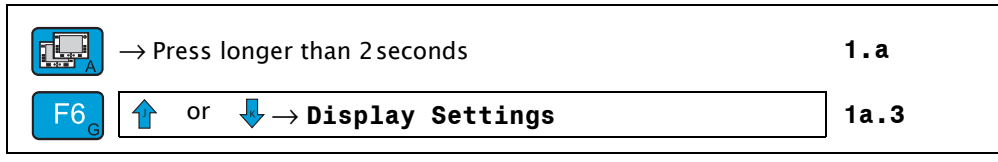
Menus 1.a.3 Display Settings

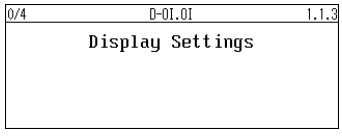
Description

You can use the *Display Settings* menu to set the properties of the display yourself.

Menu

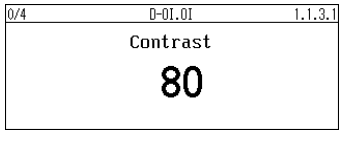
- Key sequence for menu **1.a.3:**





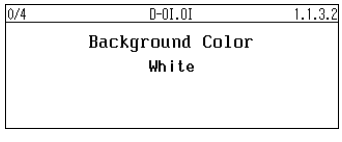
- Switch to the menus that write the *Display Settings*

Input



Menu **1.a.3.1 Contrast**

- Set the desired *Contrast*



Menu **1.a.3.2 Background Color**

- Select the desired *Background Color*

Menus 1.a.4 Configuration

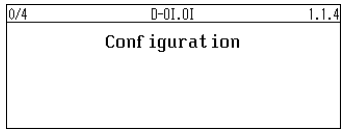
Description

This section describes the *Configuration* menus, which contain information about the D-MAX operator interface. This information is required when ordering replacement parts or for service inquires.

Menu

- Key sequence for menu **1.a.4:**

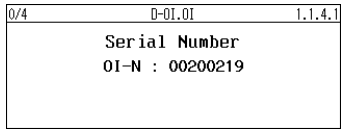
A	→ Press longer than 2 seconds	**1.a**
F6 G	⇧ or ⇩ → **Configuration**	**1.a.4**



ENTER N

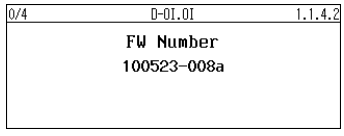
- Switch to the menus that write the *Configuration*

Display



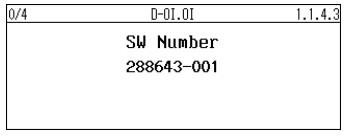
Menu **1.a.4.1 Serial Number**

Shows the serial number of the D-MAX operator interface



Menu **1.a.4.2 FW Number**

Shows the firmware number of the D-MAX operator interface



Menu **1.a.4.2 SW Number**

Shows the software number of the D-MAX operator interface

Menus.fm

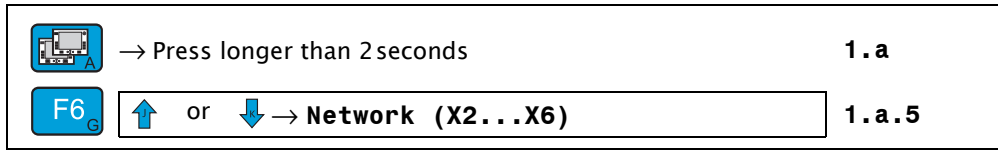
Menus 1.a.5 Network (X2...X6)

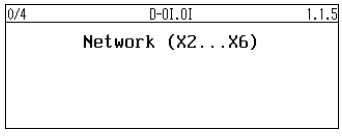
Description

These menus can be used to view and change settings of the network for ports X2 ... X6.

Menu

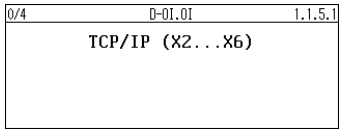
- Key sequence for menu **1.a.5:**





- Switch to the menus that describe *Network (X2...X6)*

Menu 1.a.5.1: TCP/IP (X2...X6)



The following parameters can be viewed and changed:
Menu **1.a.5.1.1 IP-Address (X2...X6)**
Menu **1.a.5.1.2 Subnet Mask (X2...X6)**
Menu **1.a.5.1.3 Gateway (X2...X6)**
Menu **1.a.5.1.4 DHCP (X2...X6)**

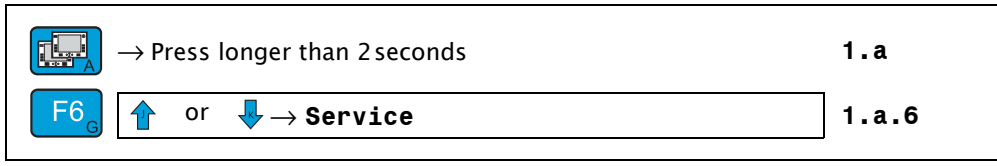
Menus 1.a.6 Service

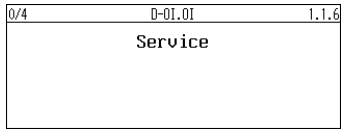
Description

The purpose of these menus is to show information about the D-MAXE system that is important for Customer Service.

Menu

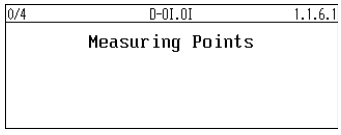
- Key sequence for menu **1.a.6:**





- Switch to menus

Input



Menu **1.a.6.1 Measuring Points**

The following parameters can be displayed:
Menu **1.a.6.1.1 Power**

The current values of voltages measured in the operator interface are displayed.

6 COMMISSIONING

Before commissioning

The following assembly and electrical connection tasks must be performed before commissioning:

- The modules of the D-MAXE system must be assembled properly.
- The modules of the D-MAXE system must be properly connected to the power supply and integrated into the 'EMERGENCY STOP' circuit of the customer's system.
- The sensors and actuators must be properly connected to the D-MAXE system.
- It is also important to become familiar with the basic operation of the user interface (see *User interface, page 4-2*).

Commissioning

Once all assembly and connection tasks have been checked and are in proper condition, the D-MAXE system can be placed in operation.

Also make certain before commissioning that

- Commissioning of the D-MAXE system is performed while the web is stopped.
- No one is in the danger zone of the drives.

Note:
The D-MAXE system has been preset to the customer application and checked before it leaves the factory.
However, this does not apply to replacement part deliveries.

WARNING:
Do not touch anything on or in the vicinity of the moving parts while the D-MAXE system is in operation.

This involves the risk of being cut on the web.

There is a danger of body parts being crushed against the actuator.

To commission the D-MAXE system, make the basic settings described in the following steps.

Note:
If the system documentation contains "Supplementary Operating Instructions" for the D-MAXE, the commissioning sequence given there must be followed.

1. Supply electrical power to the D-MAXE system.When the system is turned on, the last operating mode to be selected is active.
2. It may be necessary to change the language for menu guidance on the operator interface.
   (see *Menu 1.a.1 Language, page 5-2*)
3. Select the desired drive ("device") with the A key.
   (see *Selection of "devices", page 4-11*)

   Note:
   Each drive must be set separately.
4. If the *Remote Control* parameter is set to **ON**, this parameter must be set to **OFF**.
   (see *1y.2 Remote Control, page 7-2*)
5. Switch the D-MAXE system into Manual mode with the F3 key on the operator interface.
   There is no guiding of the web course in Manual mode.
   Now the D-MAXE system can be adjusted to the relevant application.
6. Calibrate the connected sensor / sensors.
   (see *Menus 1y.5.1.1 S 01 (X5 / 1), page 7-20* and following pages.

7. If the *LineSpeed* parameter is being used, this parameter must be calibrated.
   (see *Menu 1y.5.1.5 Line Speed (X1), page 7-28*)
8. Set the *SC polarity* parameter.
   (see *Menu 1y.4.3 SC Polarity, page 7-18*)
9. Set the *SC gain* parameter.
   (see *Menu 1y.4.2 SC Gain, page 7-17*)
10. If an encoder or motor encoder is used, it must be calibrated.
    (see *Menus 1y.5.1.7 Encoder (X3), page 7-30*)
11. You can use the F4 key to select the job whose parameters you want to adjust.
    (see *Selection of "Jobs", page 4-16*)
12. If the optional parameters 'OSC' or 'PIC' are found in the selected job, these parameters must first be switched to the **OFF** state.
    (see also the Operating Instructions "D-MAXE / OSC" or "D-MAXE / PIC")
13. Set the *Polarity* parameter.(see *Menu 1y.3.y8 Polarity, page 7-13*)
14. Set the *Gain* parameter.(see *Menu 1y.3.y3 Gain, page 7-7*)

Note:
Instead of steps 13 and 14, an *Auto Setup* can also be performed.(see *Menu 1y.3.y2 Auto Setup, page 7-6*)

15. If the optional parameters 'OSC' or 'PIC' are present, these parameters must be correctly set. To do this, perform the commissioning sequence as described in the relevant Operating Instructions.
16. Steps 11 to 15 must be performed for each job.
17. If the *Remote Control* parameter has been turned off (see step 4), this parameter must be reset to **ON** (see *1y.2 Remote Control, page 7-2*).

7 CONTROLLER MENUS

Notes

This section is a description of menus that are needed for commissioning and to make other settings in the D-MAXE system.

Section *Menu structure D-MAXE Controller, page 12-1* contains an overview of all menus.

Conventions

The following conventions apply to the menus described here:

. . .

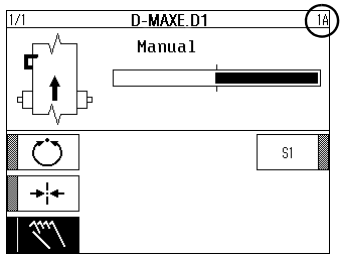
- Select "device":
  Make certain the correct D-MAXE processor and drive are selected on the Controller ("Device").

- To reach the user level:
  The key sequence for a given menu is always based on the assumption that the D-MAXE system is in the user level. To do this, continue pressing the "ESC" key or hold it down until you reach the user level.

- To set "Manual" mode:
  All menus in the D-MAXE system are described in "Manual" mode (x = 1), since that is the only mode in which all menus can be reached.

. . .

- To select a job:
  Make certain the correct job is selected.



- **x**
  Placeholder "x" is the operating mode currently set in the "device" (see *Menu identification, page 5-9*).
  (in the example x = 1)
- **y**
  Placeholder "y" is the job currently set in the "device" (see *Menu identification, page 5-9*).
  (in the example y = **A**)
  This place in the menu identification changes depending on the job selected by the customer.

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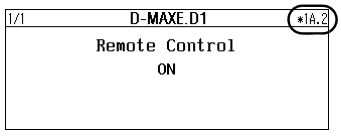
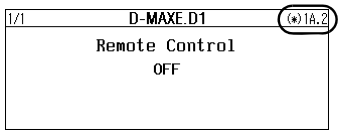
1y.2 Remote Control

Description

You can use the *Remote control* menu to lock an active remote control. Remote control can be initiated by:

- a parallel interface (X1)
- an application in a "distributed system" that administers various "devices" at the same time (see *Menu 1y.7.5 Distributed System, page 7-47*)
  The application can activate each of these "devices" externally.
- A Gateway to external fieldbus systems (see Section 2 in *Display - user level, page 5-5*)





* appears before the menu identification of the status line to identify *remote control* (see Section 6 in *Display - user level, page 5-5*):

* - *Remote control* is active

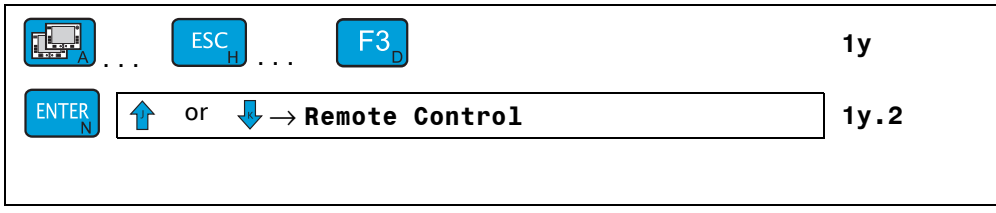
(*) - *Remote control* is present, but has been locked by the menu itself

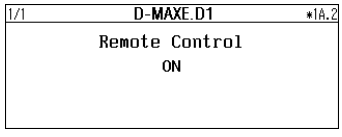
If there is no * in the menu identification, no *remote control* is present.

Note:
This menu is only available if *remote control* is present.

Menu

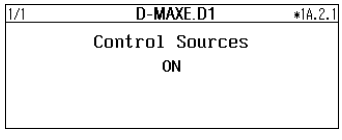
- Key sequence for menu **1y.2**:



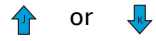


It shows the current setting for the *remote control* parameter.

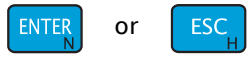
- Enable the parameter for input



Menu **1y.2.1: Control Sources**



- The *control sources* for parameter turn *remote control* on and off



- Save the entry or cancel

1y.3 Job Settings

This section is a description of menus that are used to set up the parameters of a job. A similar set of parameters is available for each job in the system. The settings of this job apply to "Automatic" mode.

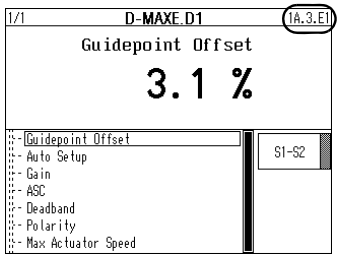
However, the number of available parameters that can be set for a job depends on customer-specific programming of the D-MAXE system.

Each job is identified by a capital letter in the status line (see *5-9*).

"Manual" mode:

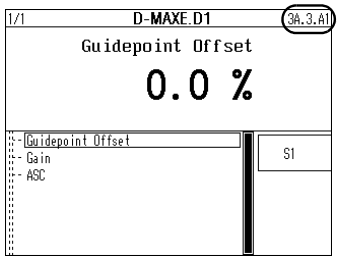
- All parameters are available.
- The identification of the job appears again in lower menu levels. The two identifications do not match. However, you can press the F4 key to show the settings of other jobs and to change them (in the example **y** = **A** and **z** = **E**).

  To simplify menu identifications in the explanations below, we assume the two jobs are identical (**y** = **z**).



"Automatic" mode:

- Only selected parameters are available.
- The identification of the job appears again in lower menu levels in "Automatic“ mode. The two identifications match and cannot be changed at this point.



"Servo-Center" mode:

- These parameters cannot be set.

Menu 1y.3.y1
Guidepoint Offset

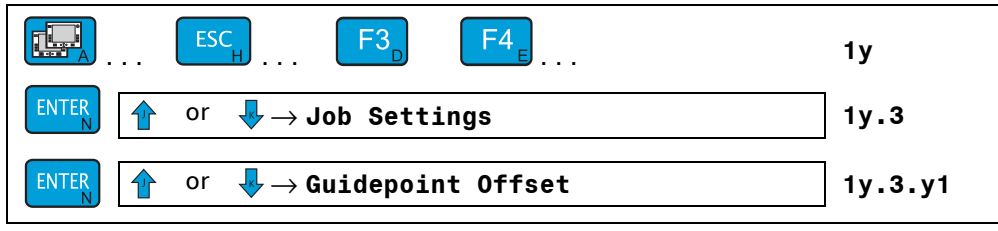
Description

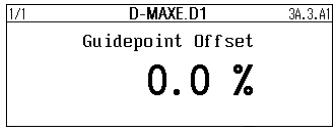
The guidepoint of the selected job (F4 key) can be adjusted for the corresponding drive with the *Guidepoint Offset*.

Note:
The *Guidepoint Offset* can also be set in menu 3y.3.y1 or directly on the user level of "Automatic" mode (see *Shift guidepoint, page 5-19*).

Menu

- Key sequence for menu **1y.3.y1**:



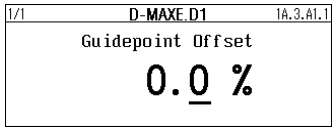


The current setting of the *Guidepoint Offset* parameter is shown here.

ENTER N

- Enable the parameter for input

Input



Menu **1y.3.y1.1: Guidepoint Offset**

or

- Position the cursor under the digit whose value you want to change

or

- Change the value of the selected digit

ENTER N or ESC H

- Save the entry or cancel

Menu 1y.3.y2 Auto Setup

WARNING:
The drive moves during automatic setup.

There is a danger of body parts being crushed against the actuator.

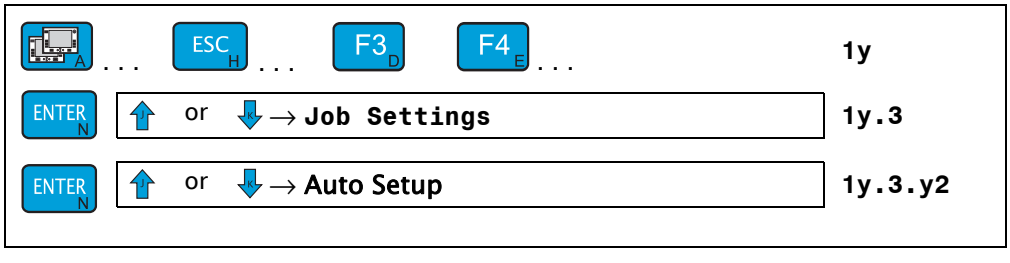
Note:
The sensors must be calibrated before the automatic setup (see *7-20*).

Description

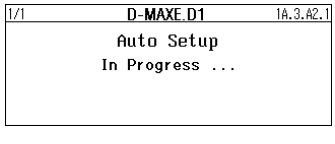
The *Auto Setup* menu is used to calibrate parameters *Gain* (*7-7*) and *Polarity* (*7-13*) automatically for "Automatic" mode of the selected drive.

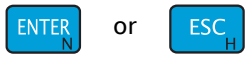
Menu

- Key sequence for menu **1y.3.y2**:



- *Auto Setup* is started.





- Save the entry or cancel

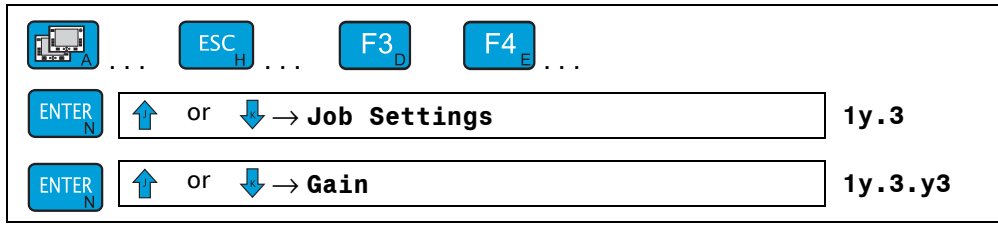
Menu 1y.3.y3 Gain

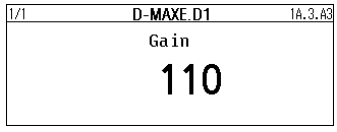
Description

You can use the *Gain* menu to adjust the guide sensitivity of the selected drive.

Menu

- Key sequence for menu **1y.3.y3**:



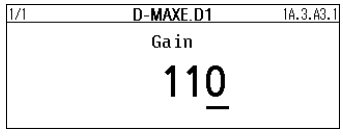


The current setting for the *Gain* parameter is shown here.

ENTER N

- Enable the parameter for input

Input



Menu **1y.3.y3.1: Gain**

or

- Position the cursor under the digit whose value you want to change

or

- Change the value of the selected digit

ENTER N or ESC H

- Save the entry or cancel

Menu 1y.3.y4 OSC

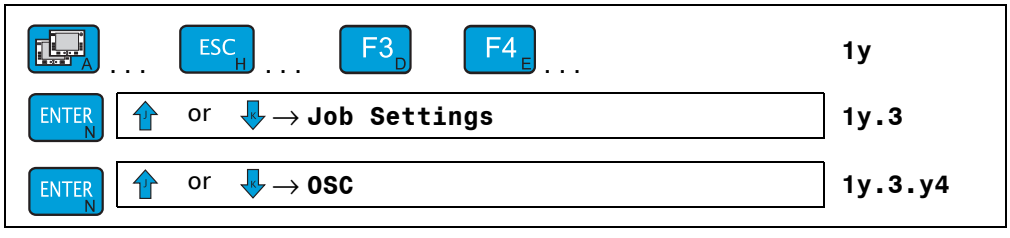
Description

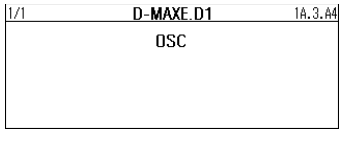
You can use the *OSC* menu to select the optional oscillator 'OSC' of the D-MAXE system.

The oscillator 'OSC' is only present in a job of the D-MAXE system if the software has been programmed accordingly.

Menu

- Key sequence for menu **1y.3.y4**:





The *OSC* menu appears.

There are two variants available for the optional oscillator 'OSC'. Commissioning and operation are described in separate operating instructions:

- Operating Instructions "D-MAXE with oscillator 'OSC' for coil applications"
- Operating Instructions "D-MAXE with oscillator 'OSC' for web Applications"

Menu 1y.3.y5 PIC

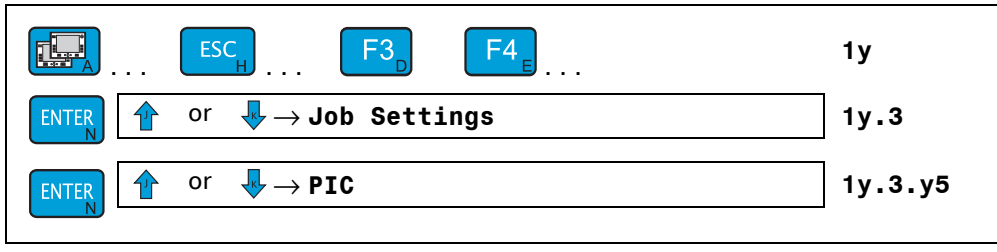
Description

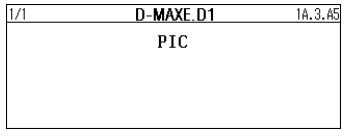
The *PIC* menu allows the user to control the web course even if there is no direct feedback available from the drive to the sensor.

The 'PIC' controller is only present in a job of the D-MAXE system if the software has been programmed accordingly.

Menu

- Key sequence for menu **1y.3.y5**:





The *PIC* menu appears.

Commissioning and operation of the 'PIC' controller is described in separate operating instructions:

- Operating Instructions "D-MAXE with 'PIC'"

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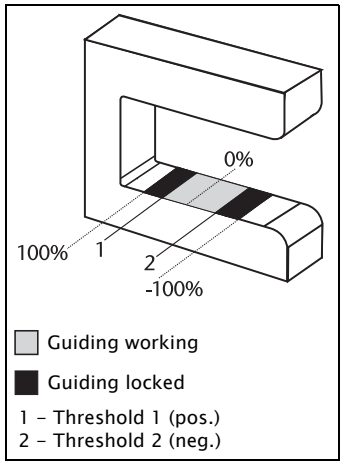
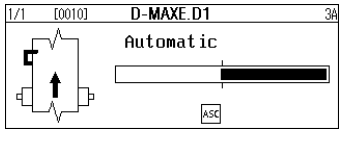
Menu 1y.3.y6 ASC

Description

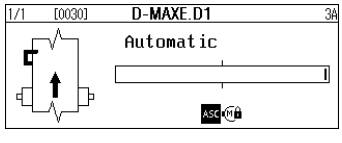
You can use the *ASC* menu (Automatic Sensor Control) to

- activate and deactivate the *ASC* parameter and
- set up *ASC* threshold 1 or 2. These thresholds restrict the outward visual range of the sensor.





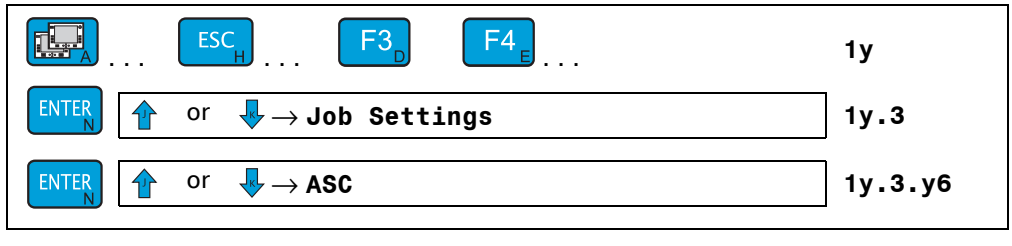
If the D-MAXE system is in "Automatic" mode and the *ASC* parameter is activated, the web is guided as long as it is within the restricted field of view of the sensor. This is indicated by the “ASC“ [0010] icon in the display.

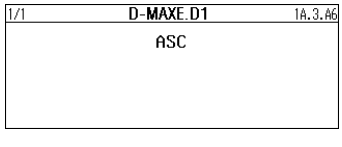


If the web leaves the limited field of view of the sensor, guiding is blocked. This is indicated by the “ASC“ and “Motor locked“ [0030] icon in the display.

Menu

- Key sequence for menu **1y.3.y6**:

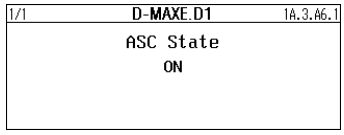




The menu for the *ASC* parameter appears.

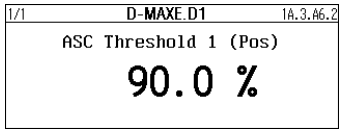
- Switch to the menus that describe the properties of the *ASC* parameter

Input



Menu **1y.3.y6.1: ASC State**

- Set the *ASC State* to **On** or **OFF**

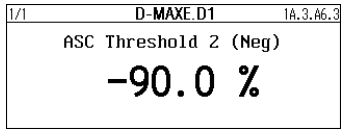


Menu **1y.3.y6.2: ASC Threshold 1 (Pos)**

- Set *ASC Threshold 1 (Pos)*

  The value that is entered must be positive.

  Standard value = 90%



Menu **1y.3.y6.3: ASC Threshold 2 (Neg)**

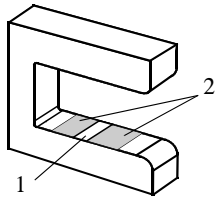
- Set *ASC Threshold 2 (Neg)*

  The value that is entered must be negative.

  Standard value = -90%

Menu 1y.3.y7 Deadband

Description



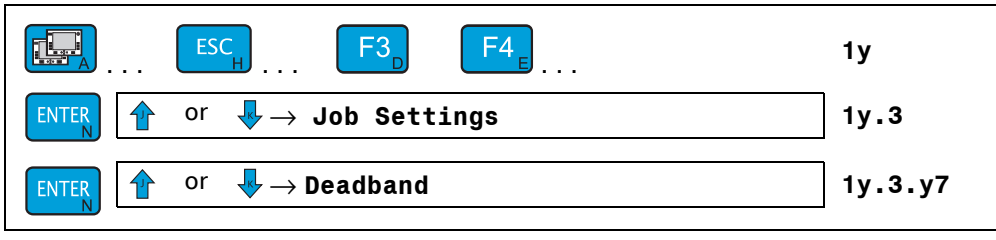
1 - Deadband
2 - Active sensor field of view

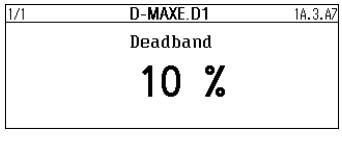
You can use the *Deadband* menu to define an area around the guidepoint inside the sensor's field of view in which guiding is not active in "Automatic" mode.

- If the web edge is in the deadband (1), no guiding will be performed.
- If the web edge is in the area of the active field of view of the sensor (2), guiding is performed.

Menu

- Key sequence for menu **1y.3.y7:**



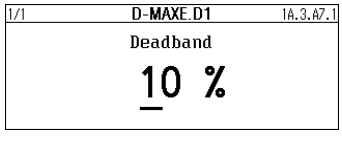


The current setting for the *Deadband* parameter is shown here.

ENTER N

- Enable the parameter for input

Input



Menu **1y.3.y7.1: Deadband**

Standard value = 0%

A value of 0% means no active deadband is present.

A value of 100% means the sensor's entire field of view has been defined as deadband. This would not be a useful setting.

or

- Position the cursor under the digit whose value you want to change

or

- Change the value of the selected digit

ENTER N or ESC H

- Save the entry or cancel

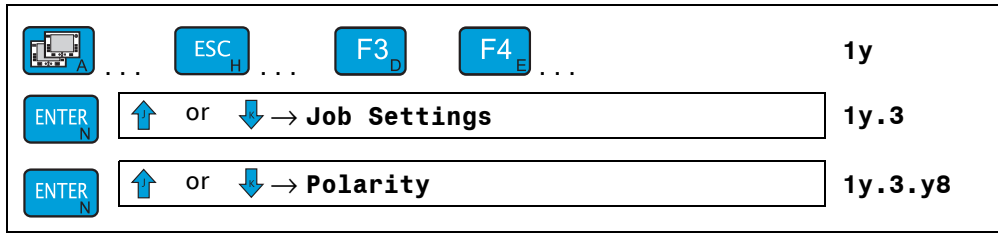
Menu 1y.3.y8 Polarity

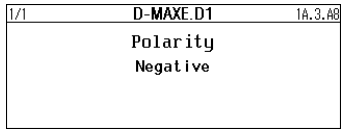
Description

The *Polarity* menu is used to set the guiding direction of the selected drive for "Automatic" mode.

Menu

- Key sequence for menu **1y.3.y8:**

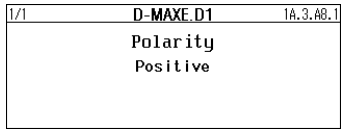




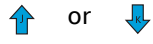
The current setting for the *Polarity* parameter is shown here.

- Enable the parameter for input

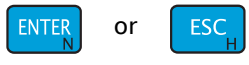
Input



Menu **1y.3.y8.1: Polarity**



- Select the desired polarity



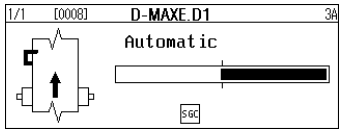
- Save the entry or cancel

Menu 1y.3.y9
Speed Gain Control

Description

The *Speed Gain Control* menu is used to determine whether web speed will affect how guiding is performed.

The *Speed Gain Control* menu is only present in a job of the D-MAXE system if the software has been programmed accordingly.

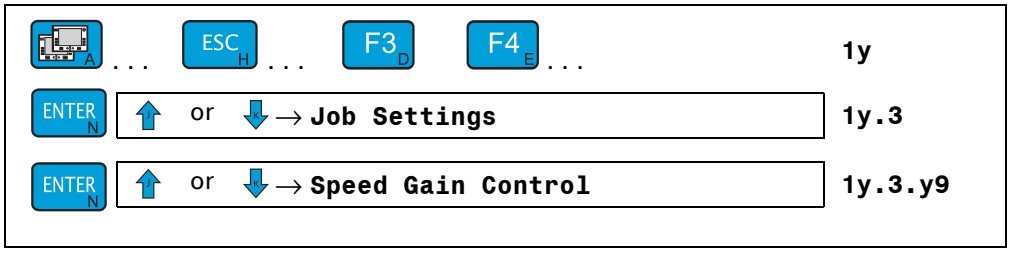


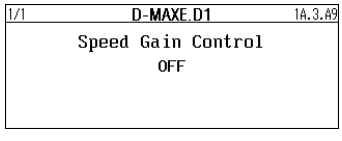
If the *Speed Gain Control* parameter is activated (**ON**), guiding depends on web speed. This is indicated by the “SGC“ [0008] icon in the display.

This icon flashes when the web speed is too low and no guiding is being performed.

Menu

- Key sequence for menu **1y.3.y9:**



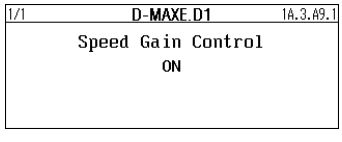


The current setting for the *Speed Gain Control* parameter appears.

ENTER N

- Enable the parameter for input

Input



Menu **1y.3.y9.1: Speed Gain Control**

or

- Set or turn off the *Speed Gain Control* parameter

ENTER N or ESC H

- Save the entry or cancel

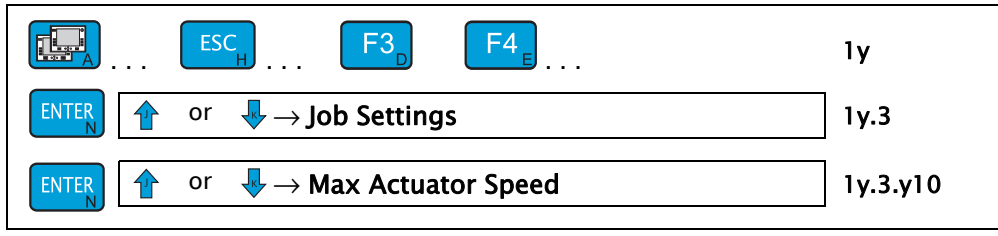
Menu 1y.3.y10
Max Actuator Speed

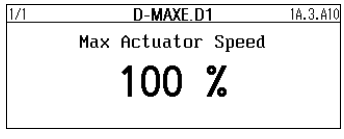
Description

You can use the *Max. Actuator Speed* menu to set the maximum speed of the motor on the selected drive.

Menu

- Key sequence for menu **1y.3.y10:**



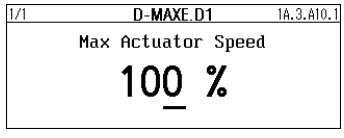


The current setting of the *Max. Actuator Speed* parameter appears.

ENTER N

- Enable the parameter for input

Input



Menu **1y.3.y10.1: Max Actuator Speed**

or

- Position the cursor under the digit whose value you want to change

or

- Change the value of the selected digit

ENTER N or ESC H

- Save the entry or cancel

1y.4 Servo-Center

This section describes menus that are used to set up the properties for "Servo-Center" mode.
SC is used as an abbreviation for Servo-Center.

"Manual" mode:

- All parameters are available.

"Servo-Center" mode:

- Only selected parameters are available.

"Automatic" mode:

- These parameters cannot be set.

Menu 1y.4.1 SC Offset

Note:
This menu is not available in the default configuration.

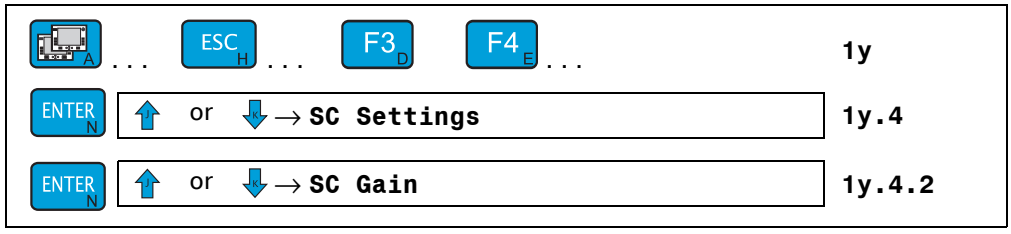
Menu 1y.4.2 SC Gain

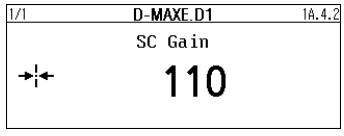
Description

The *SC Gain* menu is used to set the guide sensitivity of the Servo-Center transducer on the selected drive.

Menu

- Key sequence for menu **1y.4.2:**



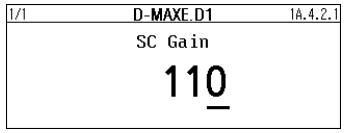


The current setting for the *SC Gain* parameter is shown here.

ENTER N

- Enable the parameter for input

Input



Menu **1y.4.2.1: SC Gain**

or

- Position the cursor under the digit whose value you want to change

or

- Change the value of the selected digit

ENTER N or ESC H

- Save the entry or cancel

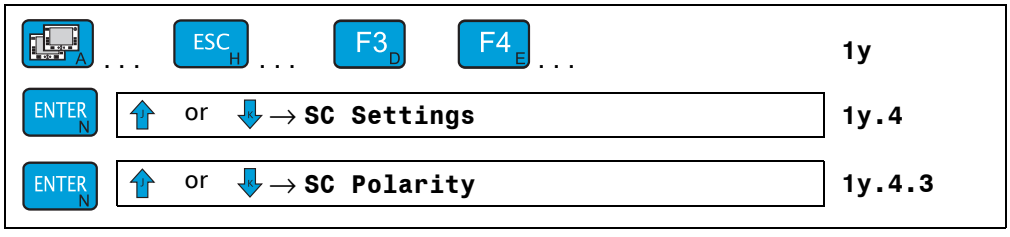
Menu 1y.4.3 SC Polarity

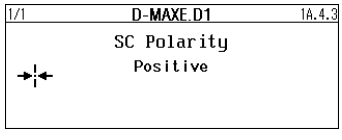
Description

The *SC Polarity* menu is used to set the guide direction of the Servo-Center transducer on the selected drive.

Menu

- Key sequence for menu **1y.4.3:**



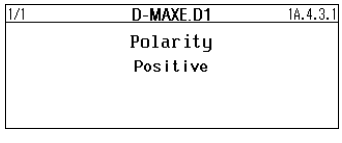


The current setting for the *SC Polarity* parameter is shown here.

ENTER N

- Enable the parameter for input

Input



Menu **1y.4.3.1: Polarity**

or

- Select the desired polarity

ENTER N or ESC H

- Save the entry or cancel

1y.5 Hardware IOs

This section contains a description of menus that can be used to view and set up the properties of the connected input and output devices.

"Manual" mode:

- All parameters are available.

"Servo-Center" mode:

- All parameters are available.

"Automatic" mode:

- Only selected parameters are available.

Menus 1y.5.1.1 S 01 (X5 /1)

These menus are used to calibrate sensor S01 at input X5/1.

Menus 1y.5.1.2 S 02 (X5 /2)

These menus are used to calibrate sensor S02 at input X5/2.

Menus 1y.5.1.3 S 03 (X9 /1)

These menus are used to calibrate sensor S03 at input X9/1. (On a D-MAXE 3, X9/1 is also connected to X11/2.)

Menus 1y.5.1.4 S 04 (X9 /2)

These menus are used to calibrate sensor S04 at input X9/2. (On a D-MAXE 3, X9/2 is also connected to X11/1 and is referred to as X11/1 in the menus.)

General information about these menus

The analog sensors present in the system must be calibrated. Each sensor in the system must be calibrated on the controller to which the sensor is connected.

Note:
It is possible that special sensors are used in the customer's system, for example a capacitive sensor or a camera. Sensors of this type cannot be calibrated with the procedure described here. The information required for a calibration is available in a set of special operating instructions for the sensor or in "Supplementary Operating Instructions“ in the system documentation.

The following sections describe the
1y.5.1._.1 Calibration
1y.5.1._.3 Dimension
1y.5.1._.4 Sensor Supervision menus.

These explanations apply to all four analog sensor connections. The S1 sensor on the X5 /1 connection is used as an example for the explanations.

Note:
All menus for all sensor connections are always available, even if the connections are not assigned. Therefore the connections that are used must be correctly selected.
Additional information may be found in the system diagram of the system documentation.

Menu 1y.5.1.1.1 Calibration

WARNING:

When calibrating a sensor, it may be necessary to move the material web inside the sensor's field of view using both hands.

This involves the risk of being cut on the web.

There is also a danger of body parts being crushed against the actuator.

Note:
It is essential to follow the instructions for installation of the sensor in the corresponding Operating Instructions.

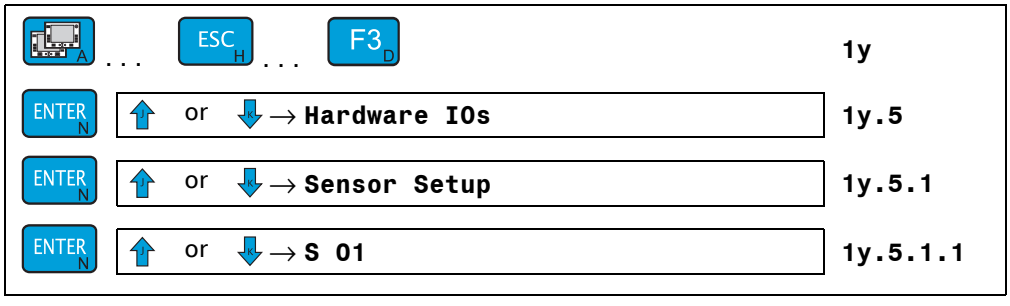
Note:
For center guiding, the following sequence must be performed for the left edge sensor and right edge sensor.

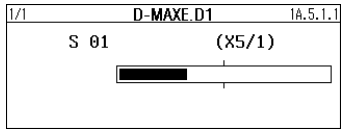
Description

You can use the *Calibration* menu to calibrate the sensors to the contrast of the web material.
The following explanation of menus is based on an example of the S01 sensor connected to X5 / 1.

Menu

- Key sequence for menu **1y.5.1.1.1**:





The sensor signal currently present is shown in the bar graph.

ENTER N

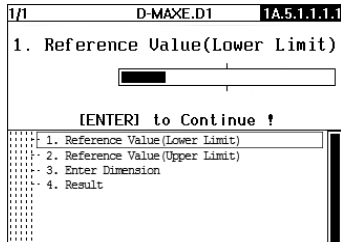
- Enable the parameter for input

ENTER N | or → **Calibration** | **1y.5.1.1.1**

ENTER N

- Start the sequence for calibrating the sensor

Menu 1y.5.1.1.1.1



1. Reference Value (Lower Limit)
The reference value for the uncovered sensor must be determined. To do this, remove the material web completely from the sensor's field of view.

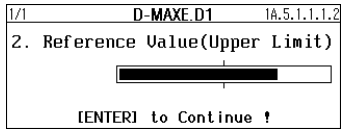
or

- Move the drive until the material web has been completely removed from the sensor's field of view
  or
  Remove the material web from the sensor's field of view manually.

ENTER N

- Determine the **reference value (open)**

Menu 1y.5.1.1.1.2



2. Reference Value (Upper Limit)
The reference value for the covered sensor must be determined. To do this, the sensor's field of view must be completely covered by the material web.

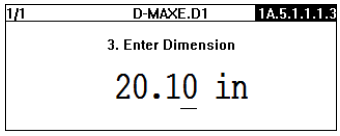
or

- Move the drive until the sensor's field of view is completely covered by the material web
  or
  Position the material web in the sensor's field of view manually

ENTER N

- Determine the **reference value (covered)**

Menu 1y.5.1.1.1.3

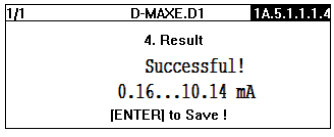


3. Dimension (OPTIONAL)

You can use the *Dimension* menu to scale the field of view of the connected sensor.

If this information is not required for the relevant customer application, the entry should be set to the default value = 0. (See *7-25*.)

Menu 1y.5.1.1.1.4



4. Result

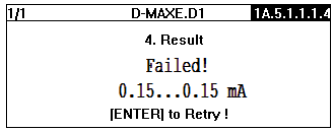
If the determined contrast is great enough for guiding, **Successful** appears in the display.

Signal increase = Contrast * 0.172 mA

ENTER N or ESC H

- Save the entries or cancel

OR



If the contrast is not sufficient for guiding, **Failed** appears in the display.

ESC H

- Cancel entries

Repeat the calibration of the sensor until the process can be completed successfully.

Menu 1y.5.1.1.3 Dimension

Description

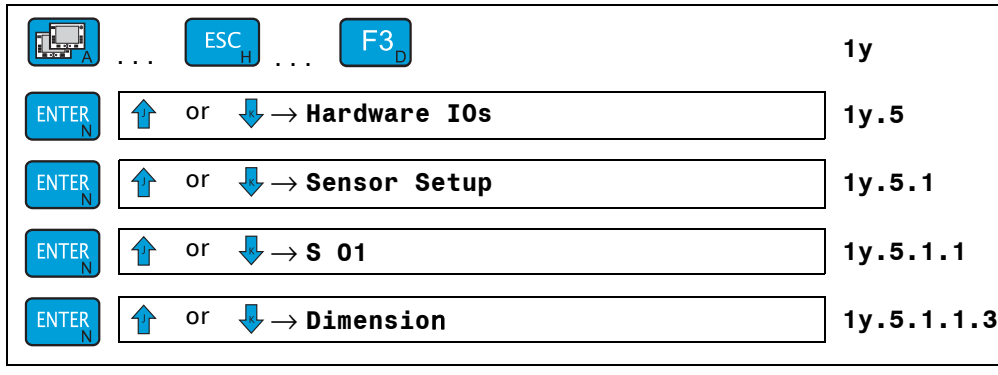
You can use the *Dimension* menu to scale the field of view of the connected sensor.

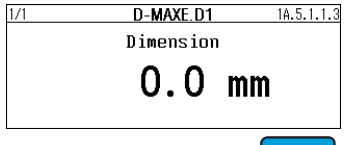
If this information is not required for the relevant customer application, the entry should be set to the default value = 0.

The following explanation of menus is based on the example of the S01 sensor connected to X5 / 1.

Menu

- Key sequence for menu **1y.5.1.1.3:**



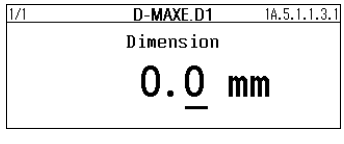


The current setting for the *Dimension* parameter is shown here.

ENTER N

- Enable the parameter for input

Input



Menu **1y.5.1.1.3.1**: **Dimension**

or

- Position the cursor under the digit whose value you want to change

or

- Change the value of the selected digit

ENTER N or ESC H

- Save the entry or cancel

Menu 1y.5.1.1.4 Sensor Supervision

Description

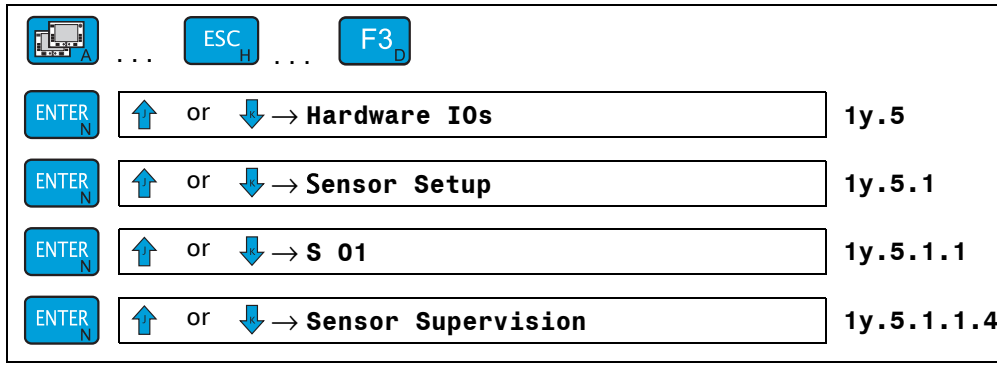
You can use the *Sensor Supervision* menu to turn this parameter on and off.

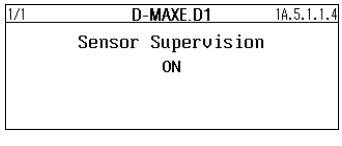
The parameter is used to detect a faulty connection between the D-MAXE Controller and a connected sensor. This parameter can only be evaluated if corresponding customer-specific programming is present.

The following explanation of menus is based on the example of the S01 sensor connected to X5 / 1.

Menu

- Key sequence for menu **1y.5.1.1.4:**



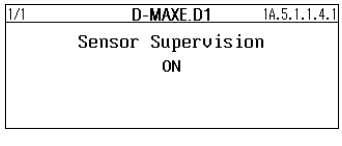


The current setting for the *Sensor Supervision* parameter is shown.

ENTER N

- Enable the parameter for input

Input



Menu 1y.5.1.1.4.1: **Sensor Supervision**

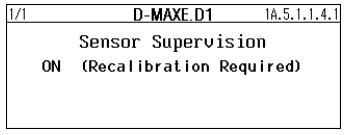
or

- Select the desired entry in the list

ENTER N or ESC H

- Save the entry or cancel

Note:
If the message **Recalibration Required!** appears in the display, the sensor calibration was not correct or the type of sensor used does not support this parameter.



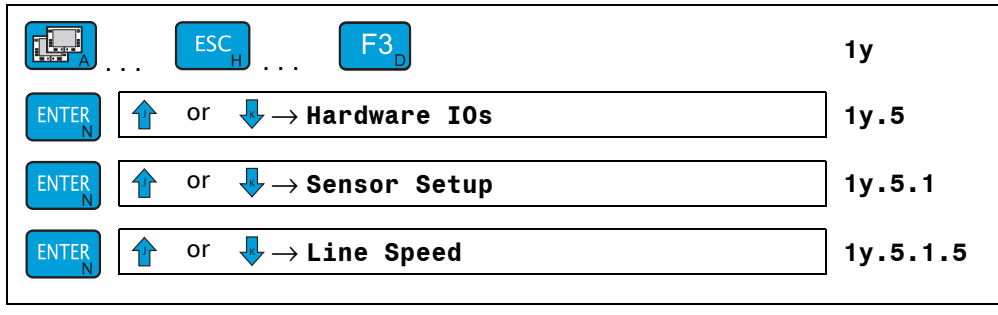
Menu 1y.5.1.5 Line Speed (X1)

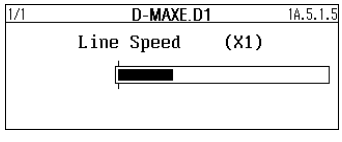
Description

The *Line Speed* menu is used to calibrate the analog Line Speed signal. This signal affects the guiding sensitivity of the drive. If appropriate customer-specific programming is present, this signal can also be used in other ways.

Menu

- Key sequence for menu **1y.5.1.5:**



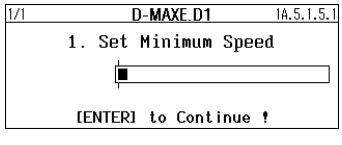


The Line Speed signal that is currently present is shown in the bar graph.

ENTER N

- Start the sequence for calibrating the *Line Speed* parameter

Menu 1y.5.1.5.1



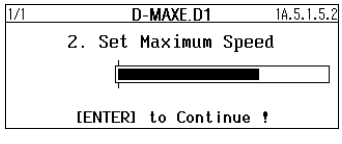
1. Set Minimum Speed

The reference value for the minimum web speed must be determined.
To do this, the material web with the relevant application must be running at minimum web speed in the customer system.

ENTER N

- Determine the reference value for the **Min. Speed** of the web

Menu 1y.5.1.5.2



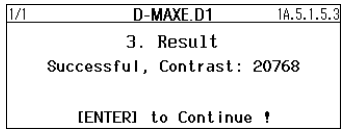
2. Set Maximum Speed

The reference value for the maximum web speed must be determined.
To do this, the material web with the relevant application must be running at maximum web speed in the customer system.

ENTER N

- Determine the reference value for the **Max. Speed** of the web

Menu 1y.5.1.5.3



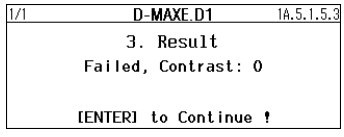
3. Result

If the result determined from the reference values can be used for web speed-dependent guiding, **Successful** appears in the display.

ENTER N or ESC H

- Save the entry or cancel

OR



If the difference (contrast) is too low, **Failed** appears in the display.

ESC H

- Cancel entries

Repeat the calibration of the Line Speed Signal until the process can be completed successfully.

Menus 1y.5.1.7 Encoder (X3)

These menus are used to calibrate the encoder on input X3.

Menus 1y.5.1.8 Motor Encoder (X4)

These menus are used to calibrate the motor encoder on input X4.

Menus 1y.5.1.7 Encoder (X7)

These menus are used to calibrate the encoder on input X7.

Menus 1y.5.1.8 Motor Encoder (X10)

These menus are used to calibrate the motor encoder on input X10.

General information about these menus

An incremental position transducer (encoder) can be connected to each drive on the D-MAXE to record positions. This makes position monitoring and evaluation possible.

In most applications, the encoder is used together with a sensor positioning system.

Note:
Generally the encoder is already preset when it ships from the factory. Therefore a resetting is required only when replacement parts are installed.

Note:
The menus for the motor encoder are not present unless a corresponding motor is present on the selected drive.

The following sections describe the
1y.5.1._.1 Calibration
1y.5.1._.2 Dimension
1y.5.1._.3 Recover Reference Point
1y.5.1._.4 Clear Encoder Limits menus.

These explanations apply to all encoder menus and are based on the encoder on X3 as an example.

Menu 1y.5.1.7.1 Calibration

WARNING:
The selected drive must be moved to calibrate the encoder.

This involves the risk of being cut on the web.

There is a danger of body parts being crushed against the actuator.

CAUTION:
Changing the encoder limits may result in danger of crushing or could damage the mechanical stops.

Description

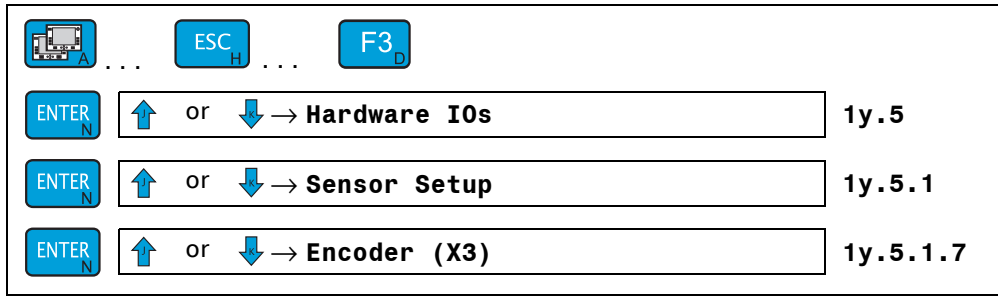
You can use the *Encoder* menu to calibrate a connected position transducer (encoder) for the selected drive. The Servo-Center transducer assigned to this drive determines the reference position of the travel path.

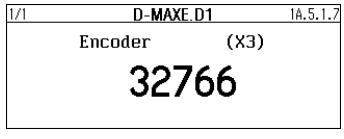
The following explanation of menus is based on an example of the encoder connected to X3.

Note:
The Servo-Center transducer must be positioned within the restricted travel path before it is possible to approach the Servo-Center position in "Servo-Center" mode.

Menu

- Key sequence for menu **1y.5.1.7.1:**

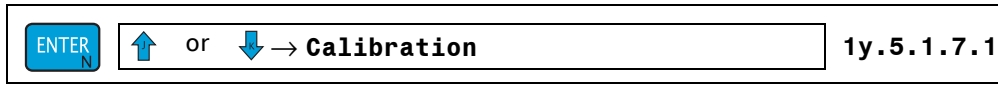


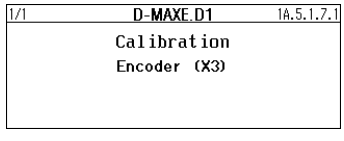


The encoder signal currently present is displayed.

ENTER N

- Enable the parameter for input

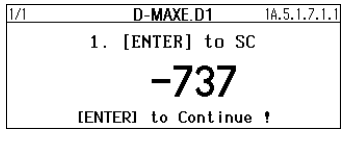




ENTER N

- Start the sequence for calibrating the *Encoder (X3)* parameter

Menu 1y.5.1.7.1.1

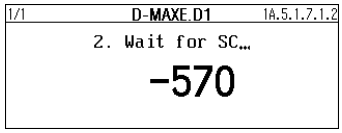


1. [ENTER] to SC
The drive first moves to the Servo-Center position.

ENTER N

- Approach the Servo-Center position

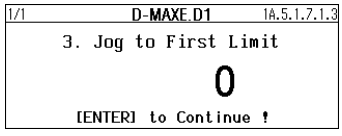
Menu 1y.5.1.7.1.2



2. Wait for SC ...
The drive moves to the Servo-Center position.

Note:
If the Servo-Center position is not reached, check the parameters of *1y.4 Servo-Center, page 7-16* and reset parameters as appropriate.

Menu 1y.5.1.7.1.3



3. Jog to First Limit
The drive moves to the position of the first threshold.

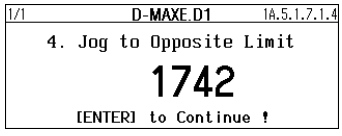
or

- Move the drive to the first limit

ENTER

- Determine the first threshold

Menu 1y.5.1.7.1.4



4. Jog to Opposite Limit
The drive moves to the position of the second threshold.

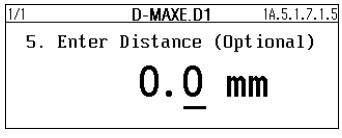
or

- Move the drive to the second limit

ENTER

- Determine the second limit value

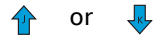
Menu 1y.5.1.7.1.5



5. Enter Distance (Optional)
Enter the measured distance between the first two thresholds.

or

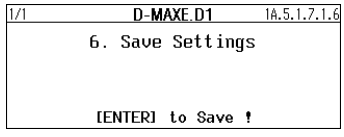
- Position the cursor under the digit whose value you want to change



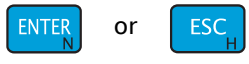
- Change the value of the selected digit

- Confirm the value that was entered

Menu 1y.5.1.7.1.6



6. Save Settings



- Save the entry or cancel

Menu 1y.5.1.7.2 Dimension

Note:
The encoder must be calibrated before this parameter can be set (see *Menu 1y.5.1.7.1 Calibration, page 7-32*).

Description

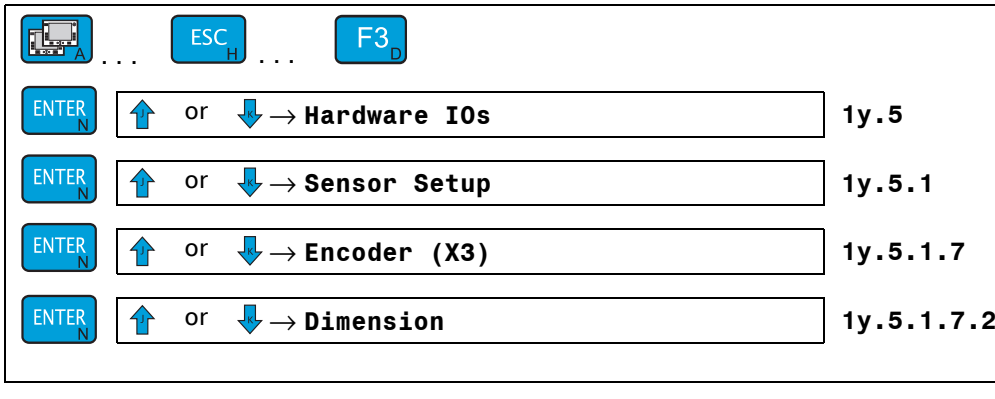
You can use the *Dimension* menu to enter the calibrated travel path of the encoder. This serves to correct the value derived from calibration of the encoder (see also *Menu 1y.5.1.7.1.5, page 7-34*, Enter the distance).

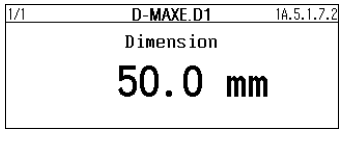
The drive must be moved to its thresholds and the distance must be measured. Enter the measured distance in this menu.

If this information is not required for the relevant customer application, the entry should be set to the default value = 0.

Menu

- Key sequence for menu **1y.5.1.7.2:**



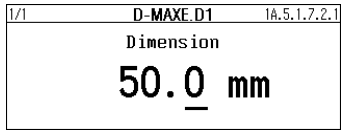


The current setting for the *Dimension* parameter is shown here.

ENTER N

- Enable the parameter for input

Input



Menu **1y.5.1.7.2.1: Dimension**

or

- Position the cursor under the digit whose value you want to change

or

- Change the value of the selected digit

ENTER N or ESC H

- Save the entry or cancel

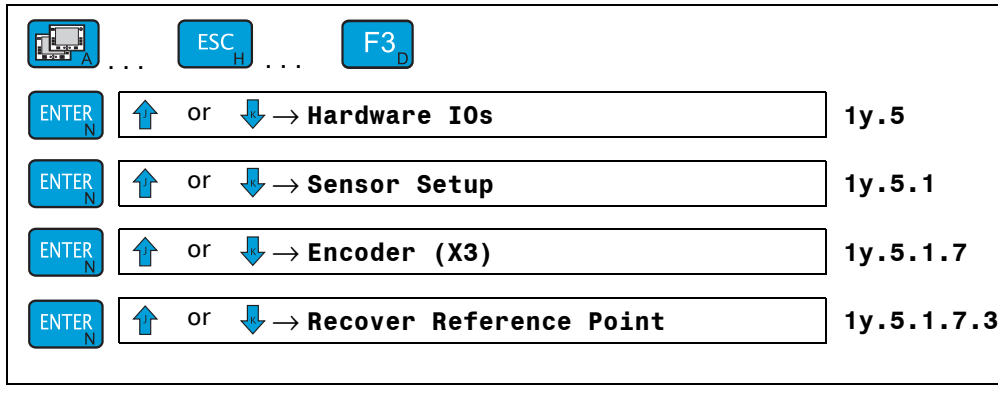
Menu 1y.5.1.7.3
Recover Reference Point

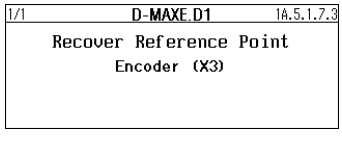
Description

You can use the *Recover Reference Point* menu to recover lost thresholds without having to perform a calibration again. Thresholds can be lost if the electrical power of the encoder has been turned off, for example.

Menu

- Key sequence for menu **1y.5.1.7.3:**

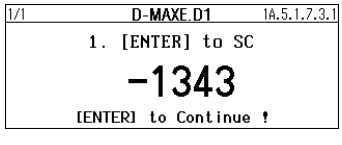




ENTER N

- Start the sequence for recovering the reference.

Menu 1y.5.1.7.3.1

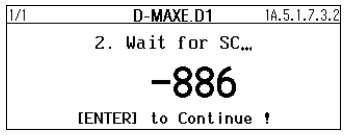


1. [ENTER] to SC
The drive first moves to the Servo-Center position.

ENTER N

- Approach the Servo-Center position

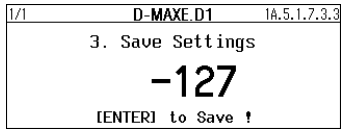
Menu 1y.5.1.7.3.2



2. Wait for SC ...

The drive moves to the Servo-Center position.

Menu 1y.5.1.7.3.3



3. Save Settings

ENTER N or ESC H

- Save the entry or cancel

Menu 1y.5.1.7.4 Clear Encoder Limits

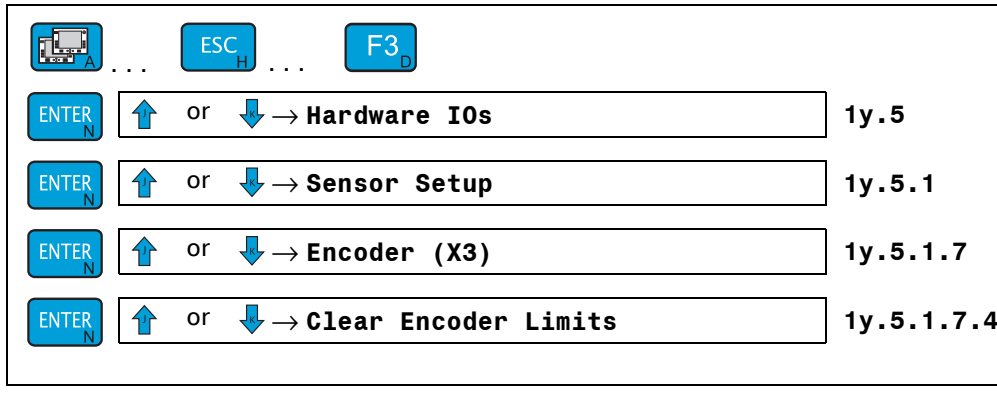
CAUTION:
Deleting the encoder limits may result in additional danger of crushing or could damage the mechanical stops.

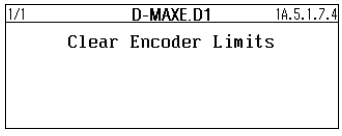
Description

You can use the *Clear Encoder Limits* menu to delete limits that are present for the selected encoder.

Menu

- Key sequence for menu **1y.5.1.7.4:**

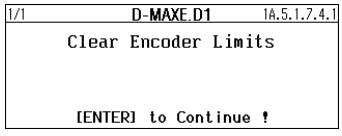




ENTER N

- Enable the parameter for input

Input



Menu **1y.5.1.7.4.1: Clear Encoder Limits**

ENTER N or ESC H

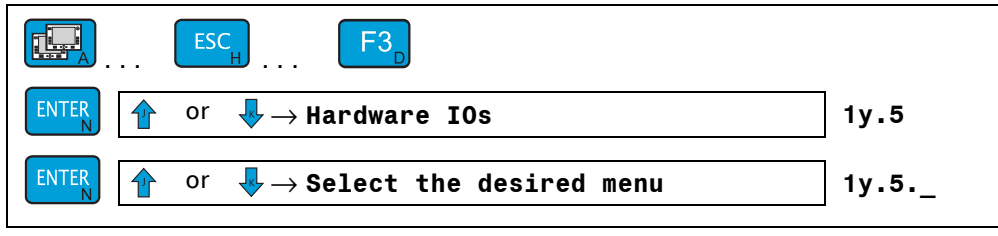
- Save the entry or cancel

Additional menus 1y.5._

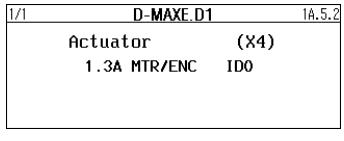
This section contains a list of menus with information about connected input / output devices of the D-MAXE Controller.

Menus

- Key sequence for menus:



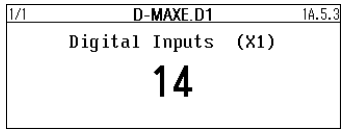
Menu 1y.5.2 Actuator



Display of the motor connected to the selected drive

see *Actuators, page 11-8*

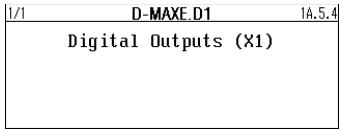
Menu 1y.5.3 Digital Inputs



Display of the 6 digital inputs as binary value

In the following submenus you can tell which of the inputs are activated or not activated. Activated inputs appear marked in the list.

Menu 1y.5.4 Digital Outputs



Configuration of the physical properties of digital outputs A and B

The outputs are automatically set to 'Set' or 'Cleared' depending on the configuration and current operating state.

A delay time can be defined for the transition from 'Cleared' to 'Set'.

To adjust the digital outputs for each of the components connected to them, the physical properties of the relevant state ('Set'/'Cleared') can be defined for each output A or B.

You can select individually for each state between:

- < 1V
- > 10.3V
- High Ohms

Menus **1y.5.4.1 Digital Output A**
- Menu **1y.5.4.1.1 Delay**
- Menu **1y.5.4.1.2 <Set> State**
- Menu **1y.5.4.1.3 <Cleared> State**

Menus **1y.5.4.2 Digital Output B**
- Menu **1y.5.4.2.1 Delay**
- Menu **1y.5.4.2.2 <Set> State**
- Menu **1y.5.4.2.3 <Cleared> State**

1y.6 Control Options

This section includes information about menus that contain basic properties for operating the D-MAXE Controller.

"Manual" mode:

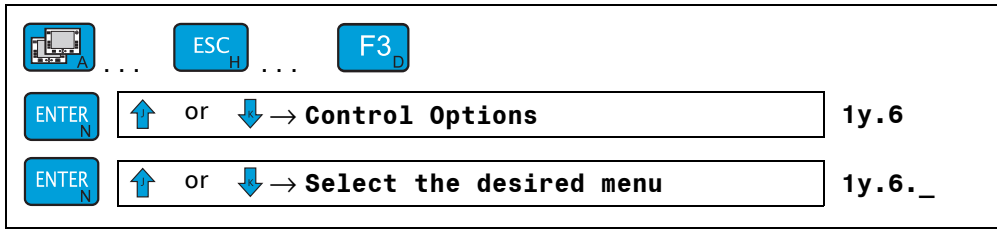
- All parameters are available.


"Servo-Center" and "Automatic" mode:

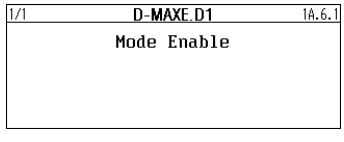
- Only the *Remote Control* parameter is available.

Menu

- Key sequence for menus:



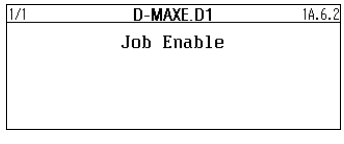
Menu 1y.6.1 Mode Enable



Activate and deactivate operating modes "Automatic" and "Servo-Center"

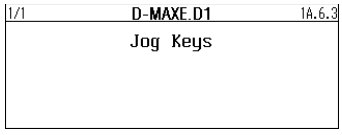
Note:
"Manual" mode cannot be deactivated.

Menu 1y.6.2 Job Enable



Activate and deactivate jobs

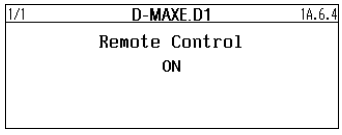
Menu 1y.6.3 Jog Keys



Define different properties of the Right / Left keys

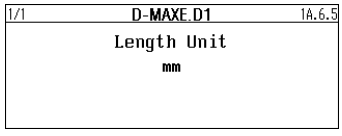
Menu 1y.6.3.1 **Jog Enable**
Menu 1y.6.3.2 **Jog Direction**
Menu 1y.6.3.3 **Jog Speed**
Menu 1y.6.3.4 **Jog Soft Start**

Menu 1y.6.4 Remote Control



Turn *Remote Control* on and off
(see also *1y.2 Remote Control, page 7-2*)

Menu 1y.6.5 Length Unit



Setting up the desired length unit

Note:
If the *Dimension* parameter (see *7-25*) is used for the sensors in the current customer application, the value of the *Dimension* parameter must be checked after a change is made to the *Length unit*.
If the displayed value of the parameter is not correct, this value must be converted manually and entered again in *"Menu 1y.5.1.1.3 Dimension"*.

Menu 1y.6.6 Hardlock

Note:
This parameter can only be used if an encoder is available for the selected drive.

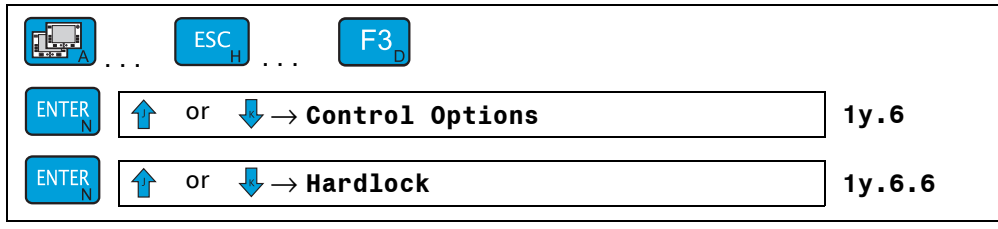
Description

The *Hardlock* menu is used to set up three parameters. When the operating mode switches to "Manual" the position of the drive is kept active at that time by these three parameters.

Power is normally turned off to the drive in "Manual" mode. If general conditions are unfavorable in the customer system, it may happen that the drive is mis-adjusted while the power is turned off. To prevent this from happening, the drive can be kept active in "Manual" mode.

Menu

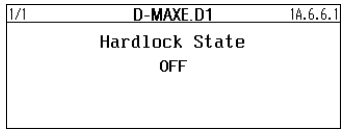
- Key sequence for menu **1y.6.6:**



ENTER N

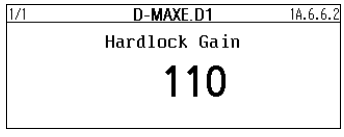
- Switch to the menus that describe the properties of the *Hardlock* parameter

Input



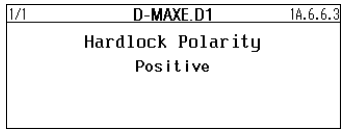
Menu **1y.6.6.1 Hardlock State**

- Turn the *Hardlock* parameter on and off



Menu **1y.6.6.2 Hardlock Gain**

- Set the gain for the *Hardlock* parameter



Menu **1y.6.6.3 Hardlock Polarity**

- Set the polarity for the *Hardlock* parameter

1y.7 Configuration

This section includes a list of menus containing information about the D-MAXE Controller. This information is required when ordering replacement parts or for service inquires.

"Manual" mode:

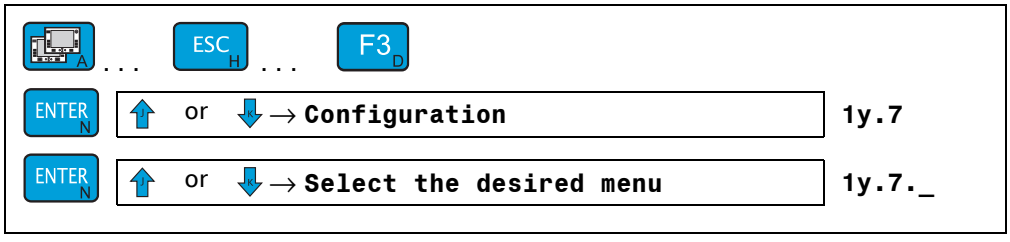
- All parameters are available.

"Servo-Center" and "Automatic" mode:

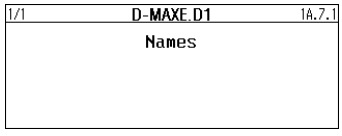
- Only selected parameters are available.

Menu

- Key sequence for menus:



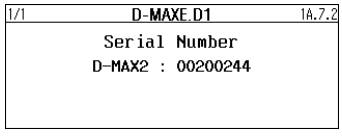
Menu 1y.7.1 Names



The designations of the device (D-MAXE Controller) and drive can be changed.

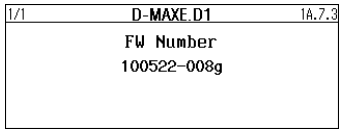
Menu **1y.7.1.1 Device**
Menu **1y.7.1.2 Drive**

Menu 1y.7.2 Serial Number



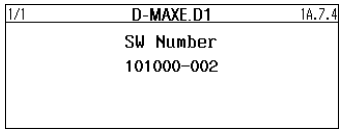
Shows the serial number of the D-MAXE Controller

Menu 1y.7.3 FW Number



Shows the firmware number of the D-MAXE Controller

Menu 1y.7.4 SW Number



Shows the software number of the D-MAXE Controller

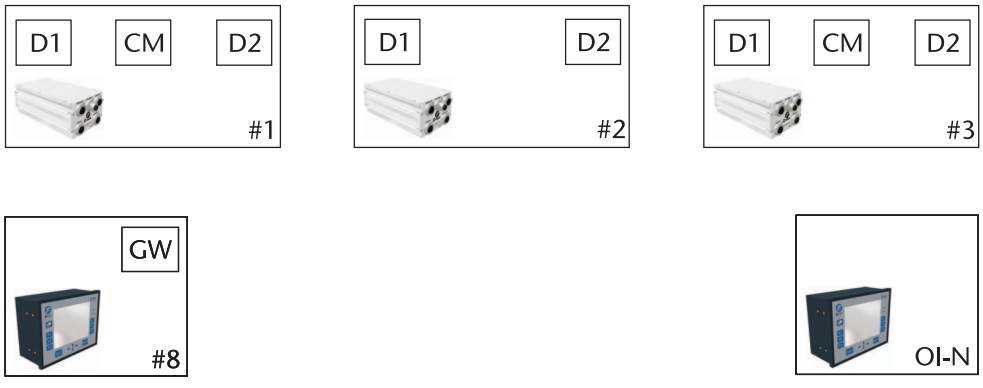
Menu 1y.7.5 Distributed System

Description

The parameters under the *Distributed System* menu are used to group the elements ("devices") connected to a common network and their menu structures depending on how they are used and to display them selectively on a D-MAX operator interface (OI or virtual OI).

Note:
These parameters have no effect on how the connected "devices" operate. They are evaluated by the operator interfaces only to provide clearer display.
Applications that are not set up or are assigned incorrectly have no effect on the functionality of "devices".

Figure 7.1 shows an example of a distributed system consisting of several D-MAXE Controllers and operator interfaces. Each individual element of the distributed system has its own menu structure. These elements ("devices") must be operated from a separate operator interface OI-N.



#1-D-MAXE Controller with address 1: CM:Main operation 'MSCG' (Moving Sensor Center Guide)
D1:Sensor positioning
D2:Sensor positioning

#2-D-MAXE Controller with address 2: D1:Guiding (e.g. offset pivot guide)
D2:Record Master web

#3-D-MAXE Controller with address 3: CM:Main operation 'Chasing'
D1:Record Slave web
D2:Slave web guiding

#8-D-MAXE operator interface OI-N with address 8: GW: Gateway for data exchange with customer

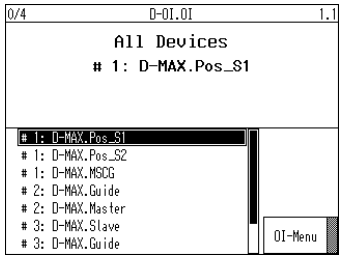
OI-N - separate operator interface

Figure 7.1: Example of a distributed system

All elements ("devices") present in the distributed system can be selected in operator interface OI-N.

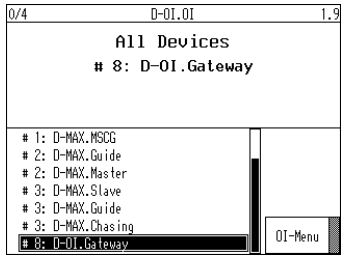
- Press the A key for longer than 2 seconds.

A list appears with all "devices" of the distributed system present on the network.



Top part of the list "All Devices"

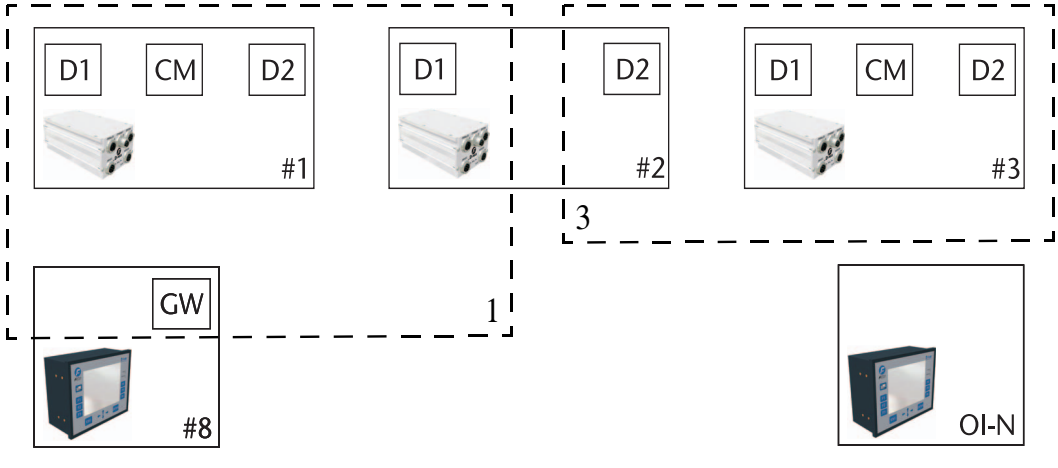
- You can use the 'Up-Arrow' and 'Down-Arrow' keys to move up and down within the list



Bottom part of the list "All Devices"

To be able to navigate effectively within such a complex network, individual "devices" and the corresponding menu structures are combined to form applications. Thus an application consists of several menu structures in a distributed arrangement (see *Figure 7.2*).

These menu structures with distributed arrangement are logically combined and given designations in menu **1y.7.5.1 Application ID** (n = 1 ... 255).



1 - Application identification 1:

#1/D1-->Subfunction 2
#1/D2-->Subfunction 1
#1/CM-->Subfunction 0
#2/D1-->Subfunction 3
#8/GW-->Subfunction 4

3 - Application identification 3:

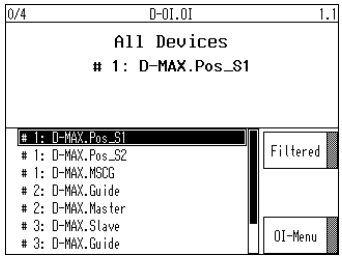
#2/D2-->Subfunction 1
#1/CM-->Subfunction 0
#3/D1-->Subfunction 2
#3/D2-->Subfunction 3

Figure 7.2:Example of combining "devices" within a distributed system

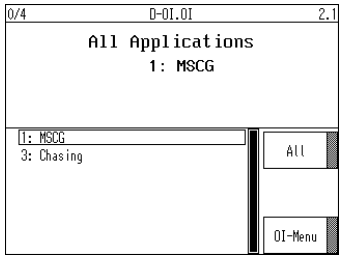
Every "device" inside an application has a subfunction with its menu structure. The **`1y.7.5.2 Sub Function`** menu gives a unique designation (n = 0 ... 255) to these menu structures.

Subfunction '0' must be assigned to a menu structure within each application. However, it may only be assigned once per application. This menu structure makes the main operation of this application available.

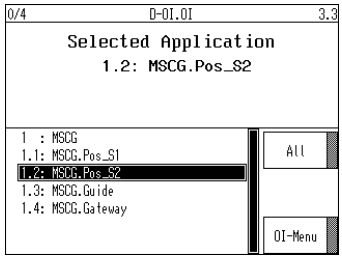
There are three different ways to view a system configured in this manner with n operator interface:



- View of "All Devices" in the network



- View of all main conditions (CM) of the applications



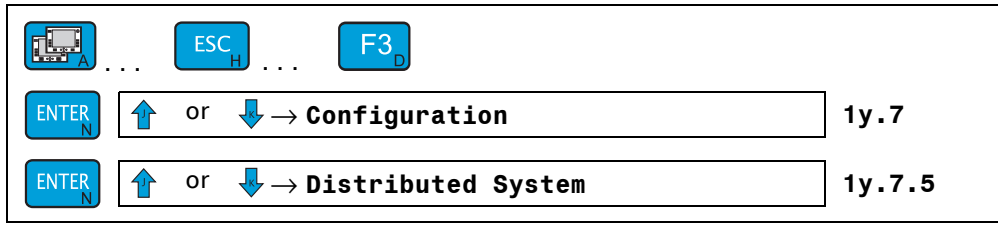
- View of all "devices" in an application

The different view types are set up in *Menu 1.a.2.2 Application Filter, page 5-5* on the operator interface.

The two parameters described below can be used to configure the distributed system. These two parameters must be configured on every "device" present in the network.

Menu

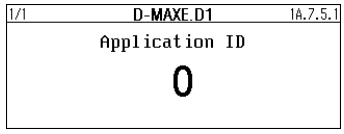
- Key sequence for menu **1y.7.5:**



ENTER N

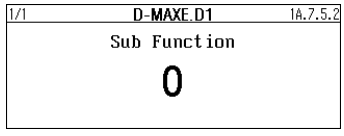
- Switch to the menus that describe the properties of the *Distributed system* parameter

Input



Menu **1y.7.5.1 Application ID**

- Entered the desired application identification
  n = 1 ... 255



Menu **1y.7.5.2 Sub Function**

- Enter the desired subfunction
  n = 0 ... 255

Menu 1y.7.7 Backup

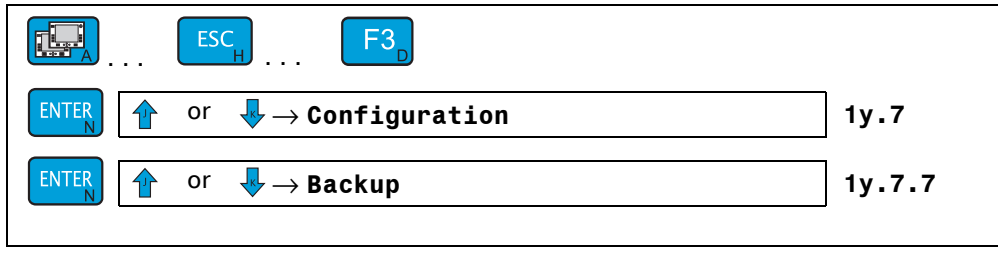
Description

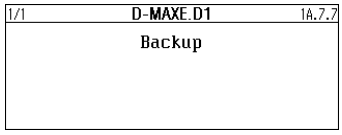
You can use the *Backup* menu to save all current user settings of the D-MAXE Controller to a backup copy in the module.

Note:
A "device" is selected for a D-MAXE 2 or D-MAXE 3 controller from which the settings are saved simultaneously for all the controller's drives. Therefore, only one backup is required.

Menu

- Key sequence for menu **1y.7.7:**

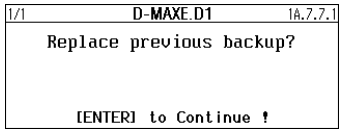




ENTER N

- Start the *backup p*rocess

Input



Menu **1y.7.7.1: Replace previous backup?**

Note:
If a backup has already been saved, the old values will be overwritten by the current ones.

ENTER N or ESC H

- Save the backup or cancel

Menu 1y.7.8 Restore

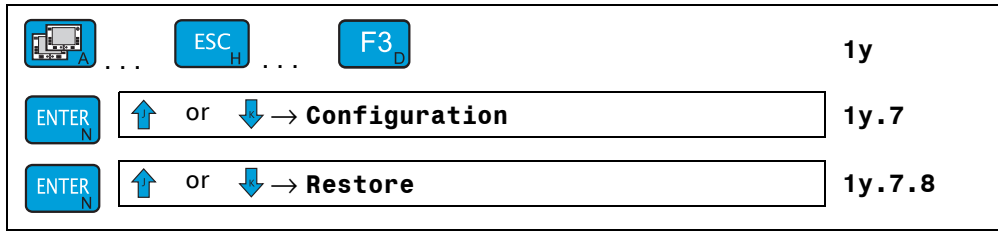
Description

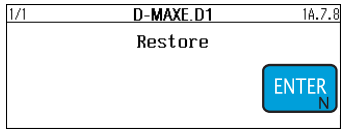
You can use the *Restore* menu to set all settings of the D-MAXE Controller to the values of a backup copy.

Note:
A "device" is selected for a D-MAXE 2 or D-MAXE 3 controller from which values are restored from a backup copy simultaneously for all the controller's drives.

Menu

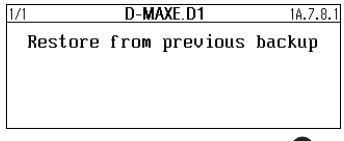
- Key sequence for menu **1y.7.8:**





- Enable the parameter for input

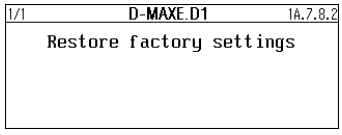
Input



Menu **1y.7.8.1: Restore from previous backup**

The settings from a backup saved by the customer are restored.

Note:
If no backup has been performed yet in the D-MAXE system, this menu is not available.



Menu **1y.7.8.2: Restore factory settings**

The factory settings are restored.

Note:
This process must only be performed when it has been requested after consultation with an employee of Fife-Tidland GmbH.

Note:
If nothing appears on the display of the operator interface after a restart, a "device" must be selected with the A key.

Note:
Then commissioning of the D-MAXE Controller must be performed.

1y.8 Network

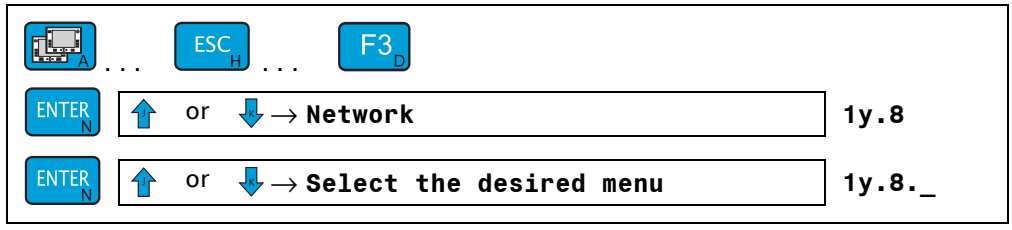
You can use these menus to view network settings and make changes to them.

Operating modes:

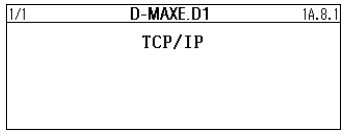
- Parameters are available in all operating modes.

Menu

- Key sequence for menus:

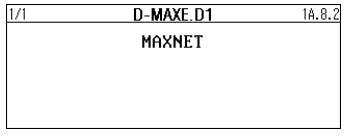


Menu 1y.8.1 TCP/IP



Displays and changes the following parameters:
Menu **1y.8.1.1 IP-Address**
Menu **1y.8.1.2 Subnet Mask**
Menu **1y.8.1.3 Gateway**
Menu **1y.8.1.4 DHCP**

Menu 1y.8.2 MAXNET



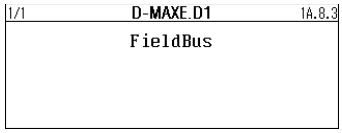
Internal addressing
Menu **1y.8.2.1 MAXNET Address**

Note:
This address should only be changed after referring to the relevant instructions in a set of "Supplementary Operating Instructions" (see system documentation) or after consulting with Maxcess.

Note:
If nothing appears on the display of the operator interface after a restart, a "device" must be selected with the A key.

Prozessor bedienung.fm

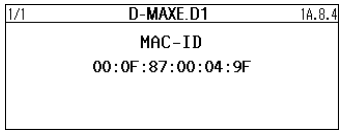
Menu 1y.8.3 FieldBus



Display of properties of the fieldbus
Menu **1y.8.3.1 FieldBus Type**
Menu **1y.8.3.2 FieldBus State**
Menu **1y.8.3.3 FieldBus Data**

For the meaning of the data, please refer to the "Supplementary Operating Instructions" in the system documentation.

Menu 1y.8.4 MAC-ID



Display of MAC-ID of the D-MAXE Controller

1y.9 Service

The purpose of these menus is to show information about settings of the D-MAXE system that is important for Customer Service.

"Manual" mode:

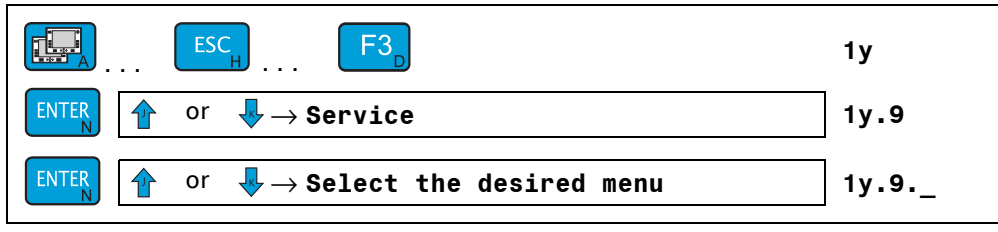
- All parameters are available.

"Servo-Center" and "Automatic" mode:

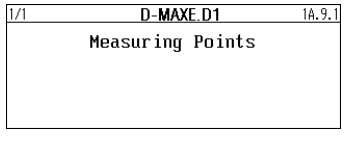
- Only selected parameters are available.

Menu

- Key sequence for menus:

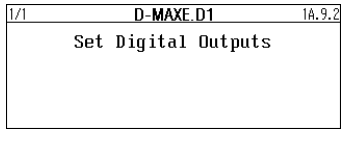


Menu 1y.9.1 Measuring Points



Display of values of the D-MAXE system
Menu **1y.9.1.1 Sensors**
Menu **1y.9.1.2 Encoder**
Menu **1y.9.1.3 Digital Inputs (X1)**
Menu **1y.9.1.6 Network**
Menu **1y.9.1.7 Power**
Menu **1y.9.1.8 Loop Gain**

Menu 1y.9.2 Set Digital Outputs

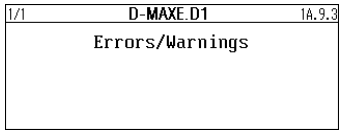


Used to test components connected to the digital outputs

CAUTION:

Actions may be initiated in the connected components!

Menu 1y.9.3 Errors / Warnings



Display of errors and warnings that occurred
Menu **1y.9.3.1 Errors / Warnings (Actual)**
Menu **1y.9.3.2 Errors / Warnings (Complete)**

8 MAINTENANCE

WARNING:
Danger of injury by crushing

⇨ Maintenance work must only be performed on the D-MAXE system when the power is turned off, the machine is stopped, and it is protected against being turned back on.

Maintenance work

No maintenance work is required on the D-MAXE Controller or operator interface.

To clean the display on the operator interface:

Depending on how dirty the environment is, carefully wipe off the operator interface display at regular intervals with a soft dry cloth.

If the display becomes very dirty, a moist cloth can be used to clean it. A mild detergent can be used to dissolve grease.

Note:
Do not use any solvents or aggressive cleaning agents to clean the display. Doing so could damage the display.

9 D-MAXE DECOMMISSIONING

Decommissioning

1. Turn off the electrical power to the D-MAXE system.
2. Remove all cables from the modules of the D-MAXE system.
3. Disassemble the modules of the D-MAXE system.
4. Modules of the D-MAXE system can be stored according to the specified ambient conditions (see *Transport and storage, page 3-1*).

   OR

   The modules of the D-MAXE system must be disposed of according to national requirements.

10 TROUBLESHOOTING

Troubleshooting procedure

The D-MAXE system is capable of detecting errors as they occur and displaying them. The system also makes information available that may help exclude possible errors.

Display possibilities

The following display possibilities are available on modules of the D-MAXE system:

- LEDs on the front sides of the D-MAXE Controller
- LEDs* L1 and L2 on the front of the D-MAX operator interface
- LEDs* on connections X2 ... X6 of the D-MAX operator interface
- Icons in the display of the D-MAX operator interface

Note:
The LEDs marked with * are not available on the virtual D-MAX operator interface.

Procedure

1. **Check the LEDs on the individual modules of the D-MAXE systems**

   → see table *10-2*

2. **Check the icons that appear in the display of the D-MAXE operator interface**

   → see page *4-4*

3. **Check possible causes for faulty behavior.** Frequent causes are connections or settings on the D-MAXE system

   → see table *10-9*

4. **Check the faulty behavior and possible causes.** Often the cause is incorrect parameter settings

   → see table *10-12*

Note:
The Operating Instructions of other components (e.g. sensors and actuators) should also be consulted for troubleshooting purposes. If there is any customer-specific programming, refer to the "Supplementary Operating Instructions" also.

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LEDs on the D-MAXE Controller

While the device is being turned on, the LEDs on the D-MAXE Controller are lit red briefly. This makes it possible to check their functionality. The LEDs indicate errors and/or show information about normal operation of the D-MAXE Controller.

LED	Status	Indicates	Remedy
Error messages			
E1 (X2/1)	Off	No Ethernet connection	Check plug and cable
	Yellow	10 mbps connection or half-duplex connection	Check switch and cable
E2 (X2/2)	Off	No Ethernet connection	Check plug and cable
	Yellow	10 mbps connection or half-duplex connection	Check switch and cable
PR	Off	No power supply	Are the power supplies correctly connected to the X6? See *Electrical connection, page 3-6* Is a fuse blown? See *Fuse replacement, page 10-14*
	Red	Power supply voltage too low, internal voltage outside tolerance or internal temperature too high	Check voltages and/or temperature See *Menu 1y.9.1.7 Power, page 7-57*
	Yellow	No motor voltage	Check motor voltages See item 2 in *Menu 1y.9.1.7 Power, page 7-57* Is a fuse blown? See *Fuse replacement, page 10-14*
Information			
E1 E2	Green or Green flashing	Ethernet connection detected	
NW	Green	External device was recognized (e.g an operator interface OI-TS)	
PR	Green	Power supply and temperature are OK	

D-MAX operator interface

While the device is being turned on, the LEDs on the D-MAXE Controller are lit red briefly. This makes it possible to check their functionality. The LEDs indicate errors and/or show information about normal operation of the D-MAXE Controller.

LED	Status	Indicates	Remedy
Error messages			
EN	Off	No Ethernet connection	Check plug and cable
PWR	Off	No power supply	Are the power supplies correctly connected to the X6? See *Electrical connection, page 3-6* Is the fuse blown? See *Fuse replacement, page 10-14*
	Green flashing	Power supply voltage too low, internal voltage outside tolerance or internal temperature too high	Check voltages and/or temperature See *Menu 1y.9.1.7 Power, page 7-57*
Information			
EN	Green	Ethernet connection detected	
	Green flashing	Connection detected and device is PTP Master	
PWR	Green	Power supply and temperature are OK	

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LEDs on the D-MAXE operator interface

While the device is being turned on, the LEDs on the D-MAX operator interface are lit briefly. This makes it possible to check their functionality. Then the LEDs indicate errors and/or show information about normal operation of the D-MAX operator interface.

LEDs L1 and L2

LED	Status	Indicates	Remedy
Error messages			
L1* Power	Off	No power supply.	Is the power supply correctly connected to the X1? see *Electrical connection, page 3-6* Is a fuse blown? see *Fuse replacement, page 10-14*
	Green flashing	Power supply voltage too low, internal voltage outside tolerance or internal temperature too high	Check voltages and/or temperature see *Menu 1.a.6.1.1 Power, page 5-11*
L2* Network	Off	No connection	Is a device actually connected to X2 ... X6?
			Check the plugs and cables of devices that are connected
Information			
L1* Power	Green	Power supply and temperature OK	
L2* Network	Green	Ethernet connection detected	

* not present on virtual operator interface

LEDs X2 ... X6

LED	Status	Indicates	Remedy
Error messages			
Yellow LED*	On, may flash briefly	Communication error	Check the plug and cable of the connected device
Yellow and green LED*	Off	No connection	Check the plug and cable of the connected device
Information			
Green LED*	On	Connection detected	
Green LED*	Flashing	Connection is active	

* not present on virtual operator interface

Icons in the display of the D-MAX operator interface

The icons in the display of the D-MAX operator interface provide information about system states. These system states are not necessarily errors; they may also be intended operating states. Therefore, these icons must be evaluated individually for troubleshooting to determine whether what seems to be an error may actually be a normal operating state of the D-MAXE system.

Icon	Status	Indicates	Possible error remedy
Error messages			
	[0004]	No motor voltage	Is the power supply correctly connected to X1? Note: Two power supplies must be connected to the D-MAX Controller! see *Electrical connection, page 3-6* Is a fuse blown? See *Fuse replacement, page 10-14*
	[0006]	Power feedback from motor (motor acting as generator)	Are external forces acting on the motor? Eliminate the external forces
			Is the motor under heavy load? This message appears briefly when heavy loads are being braked.
			Check motor and/or cable for damage or short circuits
	n/a	Motor at maximum current	It is normal for this icon to appear briefly while a motor accelerates. If the icon appears persistently: Is the actuator at end of stroke or mechanically blocked?
	[0002]	No motor detected or no motor connected	If a motor is connected, check the motor and/or cable.
	[0001]	Error display An error has been detected on the selected "device".	Check the voltages see *Menu 1.a.6.1.1 Power, page 5-11*

	[0200]	A threshold of the travel path has been reached. It is only possible to move in one direction - away from this limit.	If this message appears even though no threshold has been reached, the thresholds have been moved. To restore the basic values, switch to "Servo-Center" mode and approach the Servo-Center position. If the error persists, check the parameters in *Menu 1y.4.2 SC Gain, page 7-17* and *Menu 1y.4.3 SC Polarity, page 7-18*.

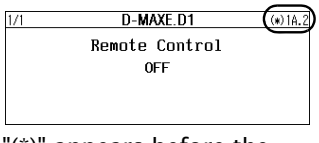
Icon	Status	Indicates	Possible error remedy
Information			
 Flashing	[0008]	The web speed for web speed-dependent guiding is equal to 0.	However, if the web speed is not equal to 0, check the signal for web speed.
 and 	[0300]	The ASC function on the selected drive has been activated and triggered and the motor is locked.	If locking was not intended, check the sensor signal and ASC thresholds. see *Menu 1y.9.1.1 Sensors, page 7-57* and *Menu 1y.3.y6 ASC, page 7-10*
	[0100]	The motor is locked because of an external signal (e.g. PIOX, fieldbus, application control).	If you did not intend for the motor to be locked, check the digital inputs. It is possible that external locking is active see *Menu 1y.9.1.3 Digital Inputs (X1), page 7-57* If there is customer-specific programming, refer to the "Supplementary Operating Instructions" in the system documentation for information about the X1 parallel interface.
 or 	[1000] or [2000]	The D-MAXE system is expecting commands from external devices.	The devices may not be connected to the network. Check whether these devices are correctly connected to the network.

Faulty behavior and setting errors

Often the cause of incorrect or undesirable guiding behavior is an incorrect setting on the D-MAXE system. These errors can easily be eliminated by changing the appropriate settings on the D-MAXE system.

Possible causes for faulty D-MAXE behavior

Errors caused by connections or settings on the D-MAXE system can result in many kinds of faulty behavior in the system. Often it is difficult to deduce the cause directly from a faulty behavior. You should therefore check the possible causes in the following table and eliminate any that are present.

Possible causes for faulty behavior	Remedy	Reference
No response on the desired actuator. Wrong actuator selected?	Select "Manual mode" and check whether the correct actuator is selected.	*Selection of "devices", page 4-11*
 "(*)" appears before the menu identification. Remote control is turned off	Remote control is turned on. Remote control must be turned on to ensure complete operation.	*1y.2 Remote Control, page 7-2*
Is activation by means of the digital inputs possible?	Check the digital inputs.	see item *Menu 1y.9.1.3 Digital Inputs (X1), page 7-57* in section *1y.9 Service*
Is activation by means of a fieldbus possible (e.g. Profibus) ?	Check the fieldbus status.	see *1y.8 Network, page 7-55*
	Check the fieldbus data.	see *1y.8 Network, page 7-55* For more information about fieldbus data, refer to the "Supplementary Operating Instructions" in the system documentation.
Are the digital outputs being used?	Check the status (set/deleted) of the digital outputs.	see *Menu 1y.5.4 Digital Outputs, page 7-42* in section *1y.5 Hardware IOs*

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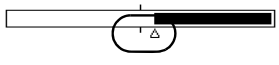
Possible causes for faulty behavior	Remedy	Reference
Sensors	Check the signals of the connected sensors (range ±32767).	see item *Menu 1y.9.1.1 Sensors, page 7-57* in section *1y.9 Service*
	It may be necessary to recalibrate the sensors.	see item *Menu 1y.5.1.1.1 Calibration, page 7-22* in section *1y.5 Hardware IOs*
	See also the Operating Instructions for the relevant sensors	
Are encoders being used?	Check whether the encoders are 'counting'.	see item *Menu 1y.9.1.2 Encoder, page 7-57* in section *1y.9 Service* For more information about the encoders, refer to the "Supplementary Operating Instructions" in the system documentation.
Are you using the correct motor?	Check the motor	see item *Menu 1y.5.2 Actuator, page 7-41* in section *1y.5 Hardware IOs* and table *Actuators, page 11-8* For further information about the motor refer to the system diagram in the system documentation.
 A cursor appears below the bar graph at the location to which the guide point was moved, together with a numeric entry.	Is the offset of the guidepoint set the way you want it? Correct the guidepoint if necessary.	

Possible causes for faulty behavior	Remedy	Reference
Incorrect results in displays or with web width measurements.	The measurement range is not set or is set incorrectly. Check the measurement range of the sensors and/or encoders you are using.	See item *Menu 1y.5.1.1.3 Dimension, page 7-25* (Sensor) or item *Menu 1y.5.1.7.2 Dimension, page 7-36* (Encoder) in section *1y.5 Hardware IOs* For further information see the "Supplementary Operating Instructions" in the system documentation.
	The length unit is set incorrectly. Check the length unit.	see item *Menu 1y.6.5 Length Unit, page 7-44* in section *1y.6 Control Options*

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Faulty behavior

The table below shows examples of faulty behavior, causes, and how to remedy the fault. Often the cause is incorrect parameter settings.

Faulty behavior	Reason	Remedy	Reference
The actuator is moving too fast or too slow.	The motor speed is not set correctly.	Adjust the motor speed	see *Menu 1y.3.y10 Max Actuator Speed, page 7-15* in section *1y.3 Job Settings*
The actuator does not move in "Automatic" mode.	The gain is set too low.	Increase the gain	see *Menu 1y.3.y3 Gain, page 7-7* in section *1y.3 Job Settings*
	The actuator is mechanically locked.	Free the actuator and clean the area.	
The actuator vibrates in the Automatic operating mode.	The gain is set too high.	Reduce the gain.	see *Menu 1y.3.y3 Gain, page 7-7* in section *1y.3 Job Settings*
	Cable connections are loose.	Check all cable connections to make certain they are securely fastened.	
The actuator moves in the wrong direction in "Automatic" mode.	The polarity is set incorrectly.	Reverse the polarity	see *Menu 1y.3.y8 Polarity, page 7-13* in section *1y.3 Job Settings*
	Wrong job selected.	Select "Manual: mode and check whether the correct job is selected.	see *Selection of "Jobs", page 4-16*
The actuator does not move in "Servo-Center" mode.	The gain for the Servo-Center transducer is set too low.	Increase the gain	see *Menu 1y.4.2 SC Gain, page 7-17* in section *1y.4 Servo-Center*
	The actuator is at the stop because the polarity is set incorrectly.	Reverse the polarity for the "Servo-Center" operation mode.	see *Menu 1y.4.3 SC Polarity, page 7-18* in section *1y.4 Servo-Center*
The actuator vibrates in the "Servo-Center" operating mode.	The gain for the Servo-Center transducer is set too high.	Decrease the gain	see *Menu 1y.4.2 SC Gain, page 7-17* in section *1y.4 Servo-Center*

Faulty behavior	Reason	Remedy	Reference
The actuator does not reach the Servo-Center position in "Servo-Center" mode.	The polarity for the Servo-Center transducer is set incorrectly.	Reverse the polarity	see *Menu 1y.4.3 SC Polarity, page 7-18* in section *1y.4 Servo-Center*
	The Servo-Center transducer is not receiving a signal.	Check the distance between the Servo-Center transducer and the measuring point. **WARNING:** It may be necessary to move the actuator to adjust the Servo-Center transducer. There is a risk of cutting injuries on the web and crushing injuries on the actuator. ⇨ Do not touch the edges of the material web. ⇨ Perform the adjustment only when the machine is stopped and protected against being turned on. Type: Switching Distance ISCT-03: about 1 mm ISCT-20: about 1.5 mm ISCT-21: about 2 mm ISCT-22: about 5 mm ISCT-23: about 10 mm	

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Fuse replacement

The printed circuit boards in the D-MAXE controller and the operator interface are static sensitive devices. All standard ESD precautions must be followed when touching or handling the printed circuit boards.

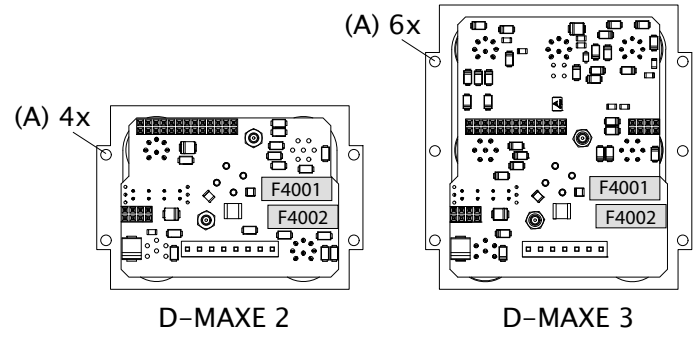
These fuses should be replaced by qualified personnel only. Follow the instructions shown below for fuse replacement.

A common cause for blown fuses is an incorrect power supply connection - especially reversed polarity. Before applying power after replacing fuses, verify correct power supply wiring per *Figure 3.5.*

If the units will not power on after fuses are replaced and correct power supply connections have been verified, the units must be returned to Maxcess for repair.

Controller fuses

1. To access the controller fuses, remove the screws **(A)** that secure the power end cover assembly to the enclosure. Carefully remove the assembly.
2. Replace the necessary fuse(s).
3. Ensure that all connectors are engaged properly.
4. Re-install the end cover assembly and tighten the screws.

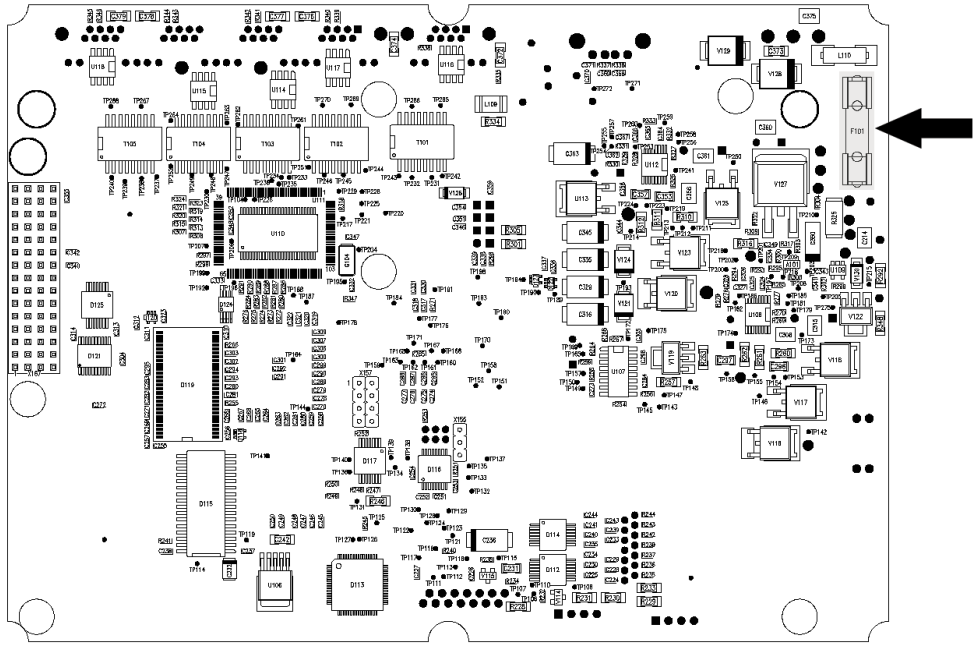


F4001 - Control power, 6.3A delay
F4002 - Drive power,10A delay

Figure 10.1: D-MAXE controller fuse locations

Operator interface fuse

To access the operator interface fuse, remove the rear panel. Replace the fuse and reinstall the rear panel.



F101 - Power fuse, 2.5A delay

Figure 10.2: Operator interface fuse location

11 TECHNICAL DATA

General information

D-MAXE Controller

Power supply
24 to 48V nominal
21V minimum to 51V maximum
The negative pole serves as a signal ground and is electrically connected with the housing. [NOTE 1]

Maximum power consumption
D-MAXE Controller - connection for control
130W maximum
D-MAXE Controller - connection for drive
200W maximum at 24V or
400W maximum at 48V

Dimensions
Length: 184mm [7.24 in] without cables
Width: 87mm [3.45 in]
Height: 60mm [2.36 in] D-MAXE 1, D-MAXE 2
93mm [3.66 in] D-MAXE 3

Weight
1.0kg [2.2 lbs] D-MAXE 1, D-MAXE2
1.2 kg [2.65 lbs] D-MAXE 3

Protection class
IP54 according to DIN EN 60529

Ambient conditions
Ambient temperature: 0°C to 60°C [32 to140°F] [NOTE 2]
Relative humidity: 10% to 95% non-condensing
Altitude above sea level: maximum 3000m [9842 ft]

Maximum output current
4.0A/drive

Fuse protection
Control power - 6.3A delay
[Bussmann S506-6.3-R or Littelfuse 021806.3P]

Drive power - 10A delay
[Bussmann S506-10-R or Littelfuse 0218010.P]

Note 2. The unit should always be mounted with good thermal contact to a large metal body such as a guide or machine frame. Some applications with very large drive and accessory load currents may require ambient temperature de-rating.

D-MAX operator interface
OI-B or OI-N

Power supply

24 - 48V nominal
21V minimum - 51V maximum

Power consumption

20W maximum

Dimensions

Length: 194 mm [7.64 in]
Width: 145 mm [5.71 in] without cables
Height: 88 mm [3.47 in]

Weight

0.87 kg [1.92 lbs]

Protection class

IP54 according to DIN EN 60529 with panel installation
IP30 according to DIN EN 60529 with wall installation

Ambient conditions

Ambient temperature: 0°C to 60°C [32 to 140°F]
Relative humidity: 10% to 95% non-condensing
Altitude above sea level: maximum 3000m [9842 ft]

Fuse protection

2.5A delay [Bussmann S506-2.5-R or Littelfuse 021802.5P]

Inputs and outputs of the D-MAXE Controller

Communication interface

based on Ethernet - 100 Mbps full duplex [Note 3]

Electromechanical drive

maximum 4A/drive

Hydraulic servo-valve

±50mA
with or without lock valve (24V or 48V, maximum 4A)

Motor Power Amplifier MPA

±10mA
with MPA locking signal

Servo-Center transducer

Analog, inductive Servo-Center transducer

Sensor input

Maximum ±20mA
Preset range 0 to 10mA
Sensor inputs can be calibrated individually

Line speed

0 to10mA
Calibration optionally possible between 0 to 20mA

Power supply for accessory devices [Note 3]

+12V ± 5%, 2000mA total
-12V ± 5%, 150mA total
+24V ±5%, 1000mA each sensor connection and serial connection

Parallel interface

6 digital inputs

Low-level: 0 to 0.9V
High-level: 4.6 to 24V; maximum power consumption 6mA to ground

2 outputs

Optionally switching to positive or ground
Positive switching: 24V (at least 22.5V at 200mA) [Note 5]
Ground switching: 0V (maximum 1.0V at 500mA)
Maximum voltage: 28V
Overcurrent and short-circuit protection

+12V available as auxiliary voltage

Note 1. Guiding amplifiers of type D-MAXE 1, D-MAXE 2 and D-MAX 3 normally have a 0 (zero) ohm connection between the primary-side protective ground wire [PE] and the DC-side ground [GND]. This is necessary to meet EMC requirements as specified by VDE 0838, part 3 2002-05 DIN EN 61000-3-3, Electromagnetic Compatibility (EMC) - part 3-3 and to ensure that connected accessory devices (sensors, encoders, actuators and operator interfaces) work properly.

Note 2. The unit should always be mounted with good thermal contact to a large metal body such as a guide or machine frame. Some applications with very large drive and accessory load currents may require ambient temperature de-rating.

Note 3. Connectors X2/1 and X2/2 provide access to an integrated two-port Ethernet switch. The dual Ethernet ports in the D-MAXE also support slave mode beacon-based DLR (Device Level Ring) technology and will automatically participate as a beacon-based slave when the DLR protocol is detected. In this mode, the two Ethernet ports function in accordance with DLR traffic rules to provide network redundancy and diagnostic capability.

Note 4. The supply output at each sensor connection and the serial connection can be individually switched between +12V and +24V. When the control supply input is less than 24V, the +24V output can be 1V below the input supply.

Note 5. When the control input supply is less than 24V, the positive switching output can be 1V below the input supply.

Parallel input matrix

Because of the option for customer-specific programming, there may be some deviations in the parallel input matrix. Customer-specific software adjustments of this type are described in the "Supplementary Operating Instructions" for the D-MAXE system and are included in the system documentation.

Mode	Inputs					
	5	4	3	2	1	0
Locking, external	-	-	-	-	-	H
Automatic	-	-	L	L	H	-
Manual	-	-	L	H	L	-
Servo-Center	-	-	H	L	L	-
Move drive left*	L	H	-	-	-	-
Move drive right*	H	L	-	-	-	-
RGPC left*	L	H	-	-	-	-
RGPC right*	H	L	-	-	-	-
RGPC RESET*	H	H	-	-	-	-

L = Low level (<= 0,9V or blank)

H = High level (3,6V - 24V)

Empty field = not relevant for the specific command

* Inputs 4 and 5 for moving the drive in "Manual" and "Servo Center" modes
Offset of the guide point (RGPC) in "Automatic" mode

Parallel output matrix

Status	Outputs	
	B*	A*
LOSS OF NULL (Automatic mode)	-	1
Drive Servo-Centered (Servo-Center mode)	1	-

The menu *Menu 1y.5.4 Digital Outputs, page 7-42* can be used to adjust the assignment of the logical state (1 or 0) to the electrical state (active low, active high, high-impedance).

If there are differences compared to the table, they are described in the "Supplementary Operating Instructions" in the system documentation.

Jobs

	Job	Connection	Type of Guiding
A	S1	X5/1	Edge guiding*
B	S2	X5/2	Edge guiding*
C	S3	X9/1**	Edge guiding*
D	S4	X9/2**	Edge guiding*
E	S1 - S2	X5/1&2	Center guiding or slave guiding
F	S3 - S4	X9/1&2**	Center guiding or slave guiding
G	S1 - S3	X5/1 & X9/1**	Center guiding or slave guiding
H	S2 - S4	X5/2 & X9/2**	Center guiding or slave guiding
J	X5	X5/2	Line center guiding
K	X9	X9/2**	Line center guiding
L	X5	X5/1	Line edge guiding
M	X9	X9/1**	Line edge guiding

* It is possible that the sensor being used is already returning a center signal. In this case, center guiding will be performed.

** On a D-MAXE 3, S3 is connected to both X9/1 and X11/2, and S4 is connected to both X11/1 and X9/2 and will generally be referred to as X11/1.

Note:
Because of the possibility of customer-specific programming, individual jobs cannot be present or cannot be used differently than listed in the table. Customer-specific software adjustments of this type are described in the "Supplementary Operating Instructions" for the D-MAXE system and are included in the system documentation.

Actuators

Display content*	Current	**Nom. voltage	Motor / Valve	ID	Typical modules
1.3A MTR/ENC ID0	1.3A	24 VDC	M352553 Motor encoder	Series ID 00	DS-25
2.0A MTR/ENC ID1	2.0A	24 VDC	M332325 Motor encoder	Series ID 01	DS-70 D-LA-70
3.3A MTR/ENC ID2	3.3A	24 VDC	M281466 Motor encoder	Series ID 02	GMA-D1
3.3A MTR/ENC ID3	3.3A	24 VDC	M352554 Motor encoder	Series ID 03	DLAB-3-6
0.8A MTR/ENC ID4	0.8A	24 VDC	M280791 Motor encoder	Series ID 04	D-Pro-Trac 200
4.0A MTR/ENC ID5	4.0A	24 VDC	M315031 Motor encoder	Series ID 05	GMA-D3
0.4A MTR/ENC ID7	0.4A	24 VDC	M280791 Motor encoder	Series ID 07	D-PT-150
0.6A M/ENC(EGH) ID8	0.6A	48 VDC	M388282 Motor encoder	Series ID 08	D-Pro-Trac 200
0.6A NO TACH 2.05K	0.6A	48 VDC	M352555 Motor (tachless)	2.05K	Tachless Symat 25
1.3A NO TACH 3.48K	1.3A	48 VDC	M351418 Motor (tachless)	3.48K	Tachless Symat 50
0.2A NO TACH 5.11k	0.2A	24 VDC	M319177 Motor (tachless)	5.11K	Pro-Trac 150
0.6A MOTOR 6.81K	0.6A	48 VDC	M136115 Motor	6.81K	Pro-Trac 200
0.6A MOTOR 8.66K	0.6A	48 VDC	M328091 Motor	8.66K	MicroSymat Symat 25
8,0A MOTOR 11K	8.0A	36 VDC	M137384 Motor	11K	AG-11, AB-12, LAB-8
1.3A MOTOR 14K	1.3A	48 VDC	M136112 Motor	14K	Symat 70
			M126687 Motor		Symat 50
1.3A MOTOR 14K	1.3A	48 VDC	M126688 Motor	14K	GMA-1
1.6A MOTOR 16.9K	1.3A***	48 VDC	M136103 Motor (1.A6A)	16.9K	GMA-1
0.4A MOTOR 20.5K	0.4A	48 VDC	M352556/ M352557 Motor	20.5K	NarroWeb 25
2.0A MOTOR 24.9K	2.0A	48 VDC	M136111 Motor	24.9K	GMA-3
2.6A MOTOR 30.1K	2.6A	48 VDC	M146713 Motor	30.1K	LAB-10, LAB-10A
0.6A MOTOR 8.66K	0.6A	48 VDC	M136105 Motor	8.66K	LA-9
3.5A MOTOR 36.5K	3.5A	48 VDC	M126246 Motor M126687 Motor	36.5K	AB-1 LRA

Display content*	Current	**Nom. voltage	Motor / Valve	ID	Typical modules
1.0A MOTOR 44.2K	1.0A	48 VDC	M352559 Motor M352560 Motor	44.2K	NarroWeb 50
50mA HYDR 64.9K	±50mA	24 VDC	Hydraulic proportional valve	64.9K	
48V LVALVE 78.7K	0.6A	48 VDC	Hydraulic proportional valve and 48 V locking valve	78.7K	
24V LVALVE 95.3K	1.2A	24 VDC	Hydraulic proportional valve and 24 V locking valve	95.3K	
50mA HYDR AXC 121K	±50mA	24 VDC	Hydraulic servo-valve	121K	Zero-overlapped valve
48V LVALVE AXC 154K	0.6A	48 VDC	Hydraulic servo-valve	154K	Zero-overlapped valve with 48V locking valve
24V LVALVE AXC 205K	1.2A	24 VDC	Hydraulic servo-valve	205K	Zero-overlapped valve with 24V locking valve
10mA MPA 287K	±10mA	24 VDC	MPA Motor driver	287K	MPA-01/-02/-30
CUSTOM MTR 825K	Adjusted motor			825K	Not a motor from Fife
_	No motor or valve detected.			None	

* see *Menu 1y.5.2 Actuator, page 7-41*

** The maximum possible mains power voltage on the D-MAXE Controller is 51 VDC. The D-MAXE Controller regulates the voltage down to the necessary level required by the connected motor/valve.

*** 1.3A is used for the 1.6A motor.

Cable lengths

Connection	Cable lengths (maximum)
Sensors (except SE-26A)	50m [164 ft]
Sensor SE-26A	25m [82 ft]
Parallel interface	50m [164 ft]
Servo-Center transducer	50m[164 ft]
Servo-valves	50m [164 ft]
Locking valve	50m [164 ft]
Drive	14m [46 ft]
RGPC-50	100m [328 ft]
Ethernet	100m [328 ft]

Standards

Modules of the D-MAXE system have been engineered according to the standards and guidelines of the European Union. A declaration of conformity is available on file.

Modules of the D-MAXE system are in compliance with the following standards:

EN 61326-1	Radiated Emissions	Class A
	Conducted Emissions	Class A
FCC 47 CFR Part 15		Class A
ANSI C63.4		Class A
EN 61000-4-2		4kV/8kV
EN 61000-4-3		10V/m
EN 61000-4-4		2kV/1kV
EN 61000-4-5		2kV/1kV
EN 61000-4-6		3Vrms

TechnDaten.fm

Accessories (optional)

Input devices

RGPC-50/51

External input device for moving the guidepoint

RCAL-20

External input device for easier sensor calibration of edge sensors

RCAL-26

External input device for easier sensor calibration of line sensor SE-26/SE-26A

Assembly accessories

Wall bracket for D-MAXE Controller

Wall bracket for operator interface

12 MENU STRUCTURE D-MAXE CONTROLLER

Legend

The menu is only present in Manual mode

The menu is not present in Automatic mode

The menu is not present in Servo-Center mode

The menu is only present if the customer software has been programmed accordingly

A numeric entry follows.

An entry follows in which numbers and letters are possible

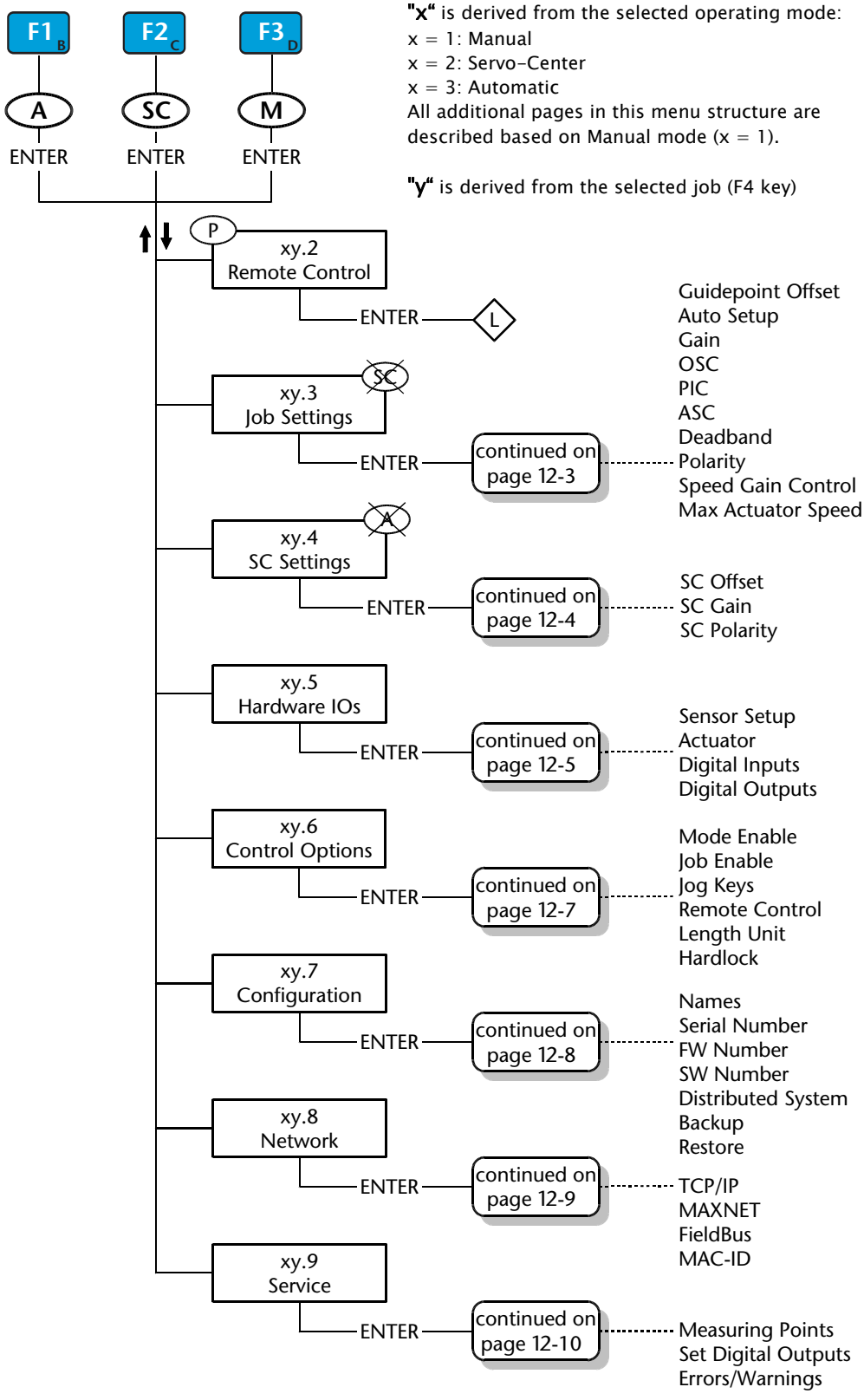
A list follows from which the entries can be selected.

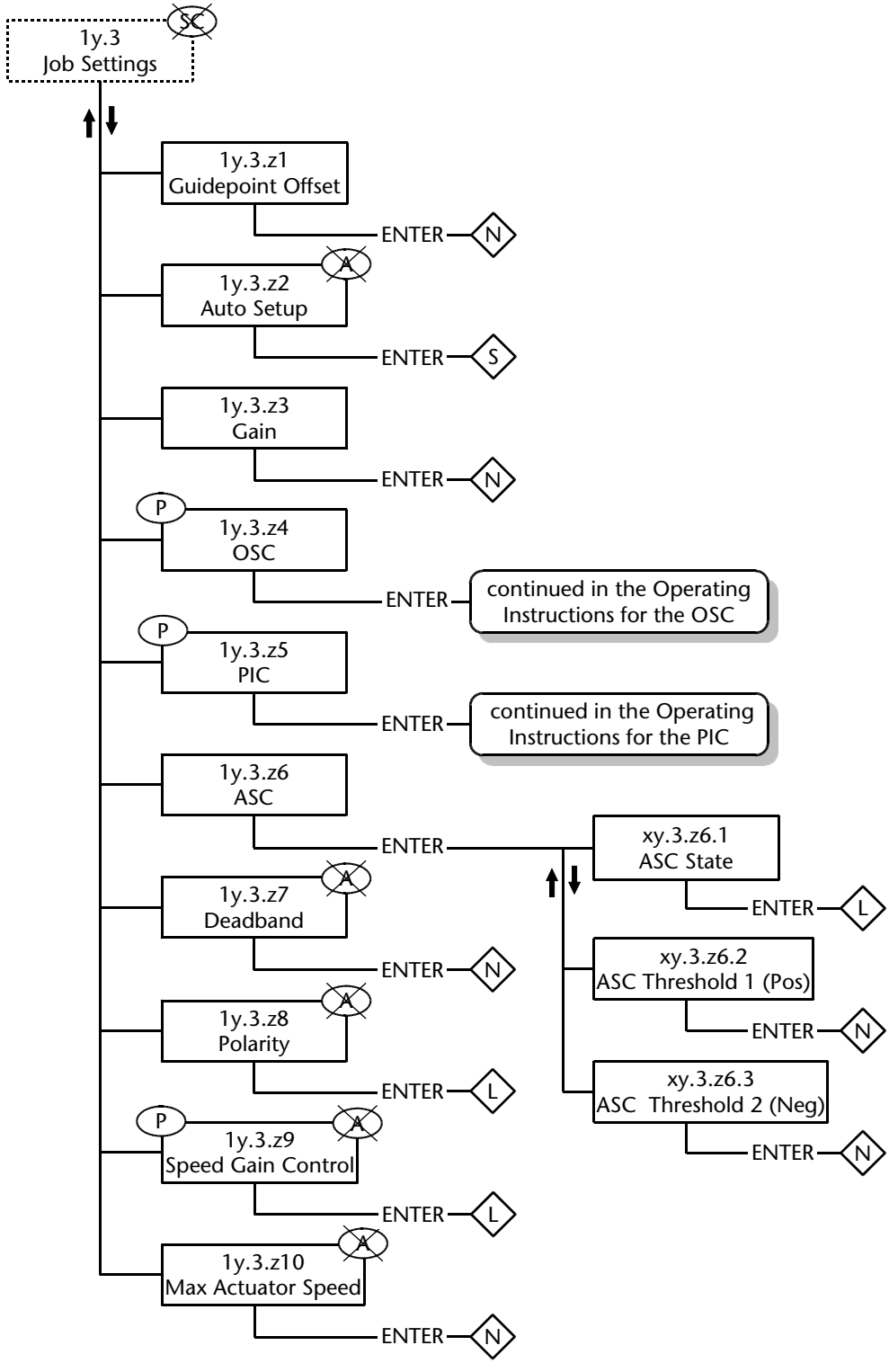
A list follows which contains various displays, but does not allow for entries

Entries can be made using a defined sequence

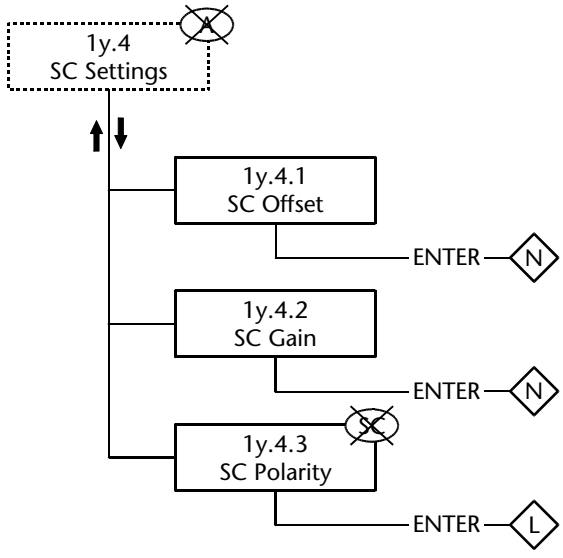
Move between the menus of a level with the "Up-Arrow" and "Down-Arrow" keys

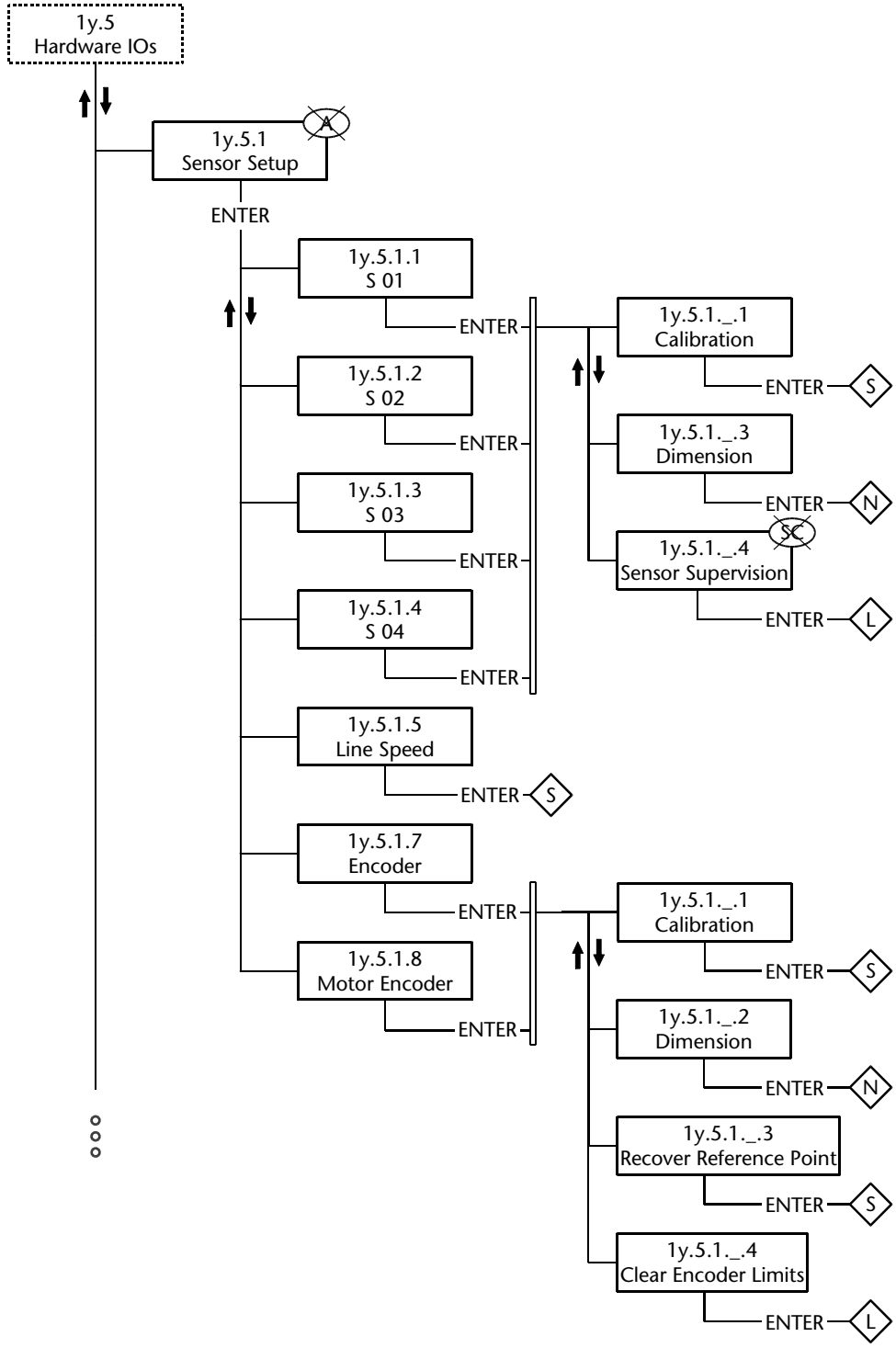
D-MAX.Menüstruktur Prozessor.fm


F1 B
F2 C
F3 D
A
SC
M
ENTER
ENTER
ENTER
"x" is derived from the selected operating mode:
x = 1: Manual
x = 2: Servo-Center
x = 3: Automatic
All additional pages in this menu structure are described based on Manual mode (x = 1).
"y" is derived from the selected job (F4 key)
P
xy.2
Remote Control
ENTER
L
Guidepoint Offset
Auto Setup
Gain
OSC
PIC
ASC
Deadband
Polarity
Speed Gain Control
Max Actuator Speed
SC
xy.3
Job Settings
ENTER
continued on page 12-3
A
xy.4
SC Settings
ENTER
continued on page 12-4
SC Offset
SC Gain
SC Polarity
xy.5
Hardware IOs
ENTER
continued on page 12-5
Sensor Setup
Actuator
Digital Inputs
Digital Outputs
xy.6
Control Options
ENTER
continued on page 12-7
Mode Enable
Job Enable
Jog Keys
Remote Control
Length Unit
Hardlock
xy.7
Configuration
ENTER
continued on page 12-8
Names
Serial Number
FW Number
SW Number
Distributed System
Backup
Restore
xy.8
Network
ENTER
continued on page 12-9
TCP/IP
MAXNET
FieldBus
MAC-ID
xy.9
Service
ENTER
continued on page 12-10
Measuring Points
Set Digital Outputs
Errors/Warnings

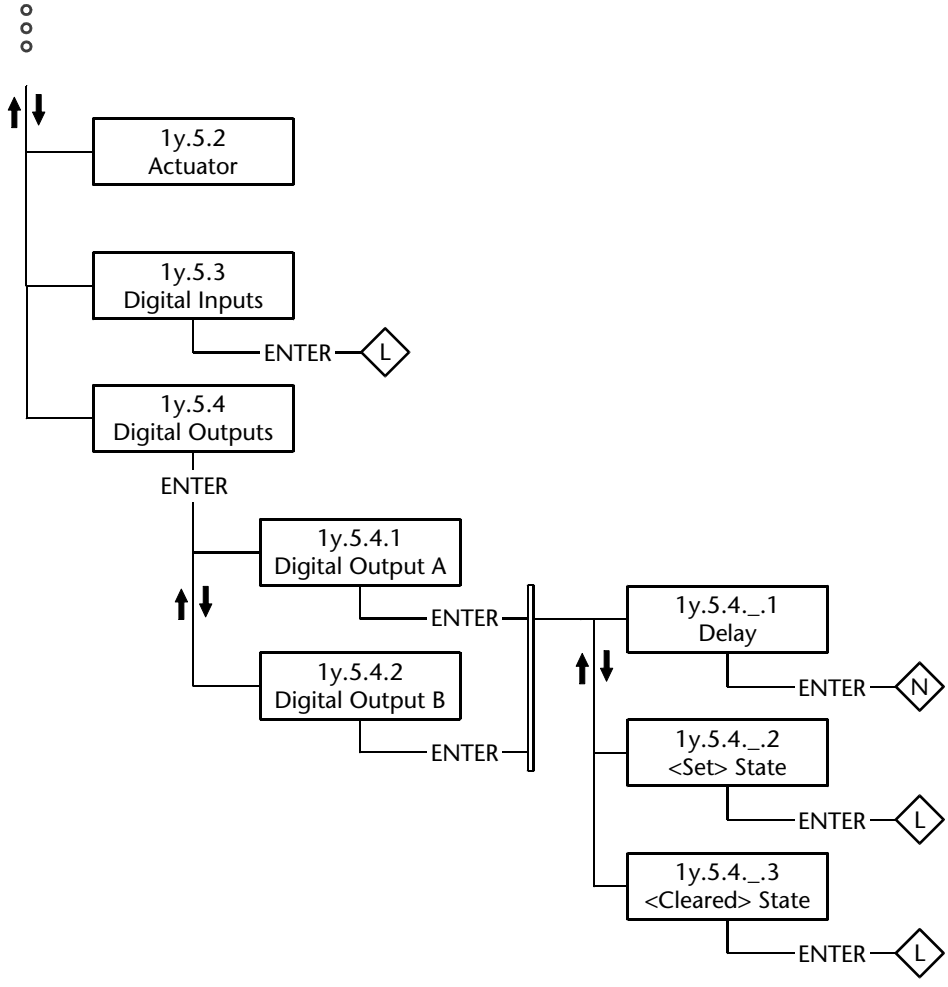


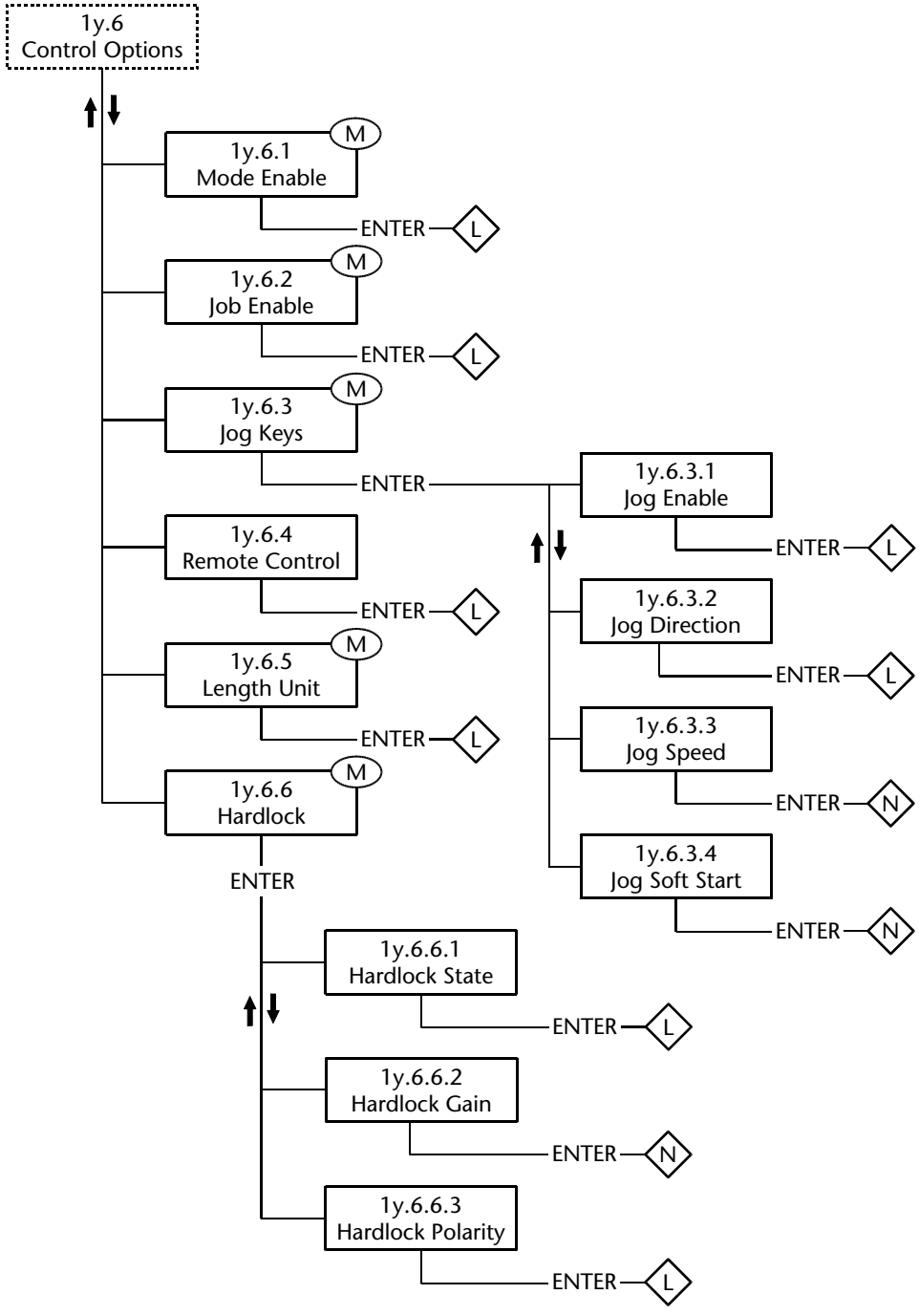
D-MAX.Menüstruktur Prozessor.fm


A
1y.4
SC Settings
1y.4.1
SC Offset
ENTER
N
1y.4.2
SC Gain
ENTER
N
SC
1y.4.3
SC Polarity
ENTER
L

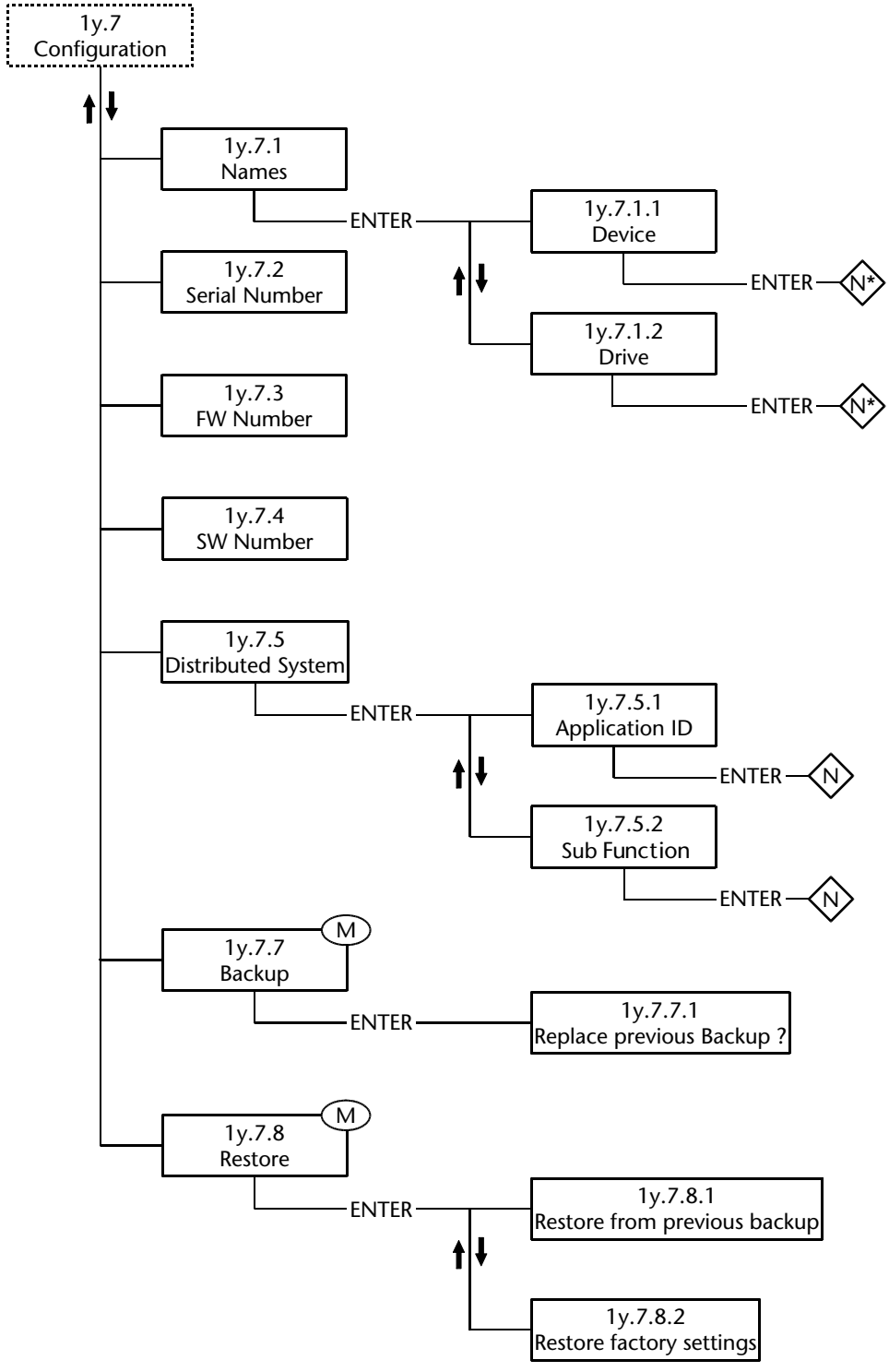


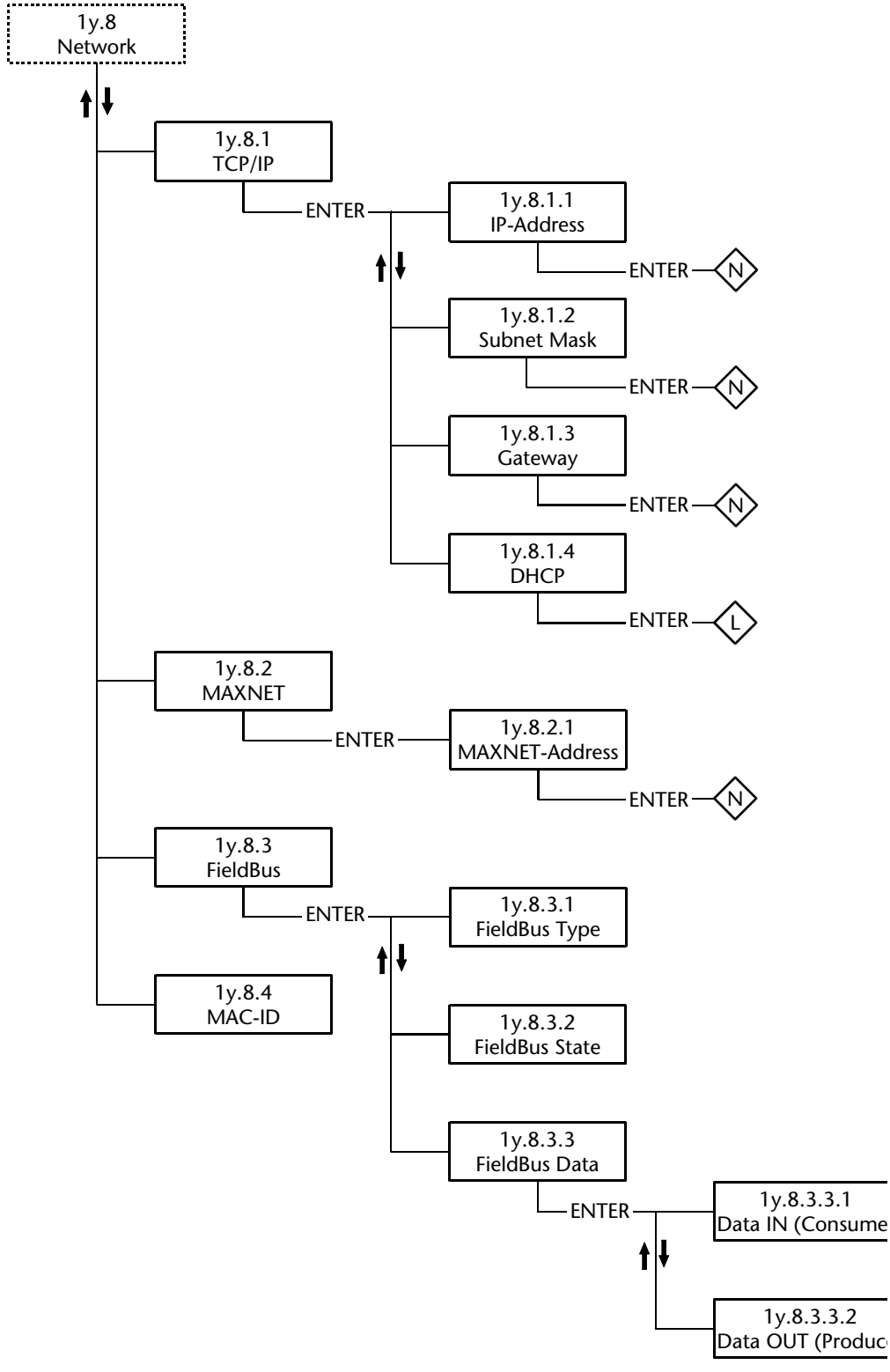
D-MAX.Menüstruktur Prozessor.fm


1y.5.2
Actuator
1y.5.3
Digital Inputs
ENTER
L
1y.5.4
Digital Outputs
ENTER
1y.5.4.1
Digital Output A
ENTER
1y.5.4.2
Digital Output B
ENTER
1y.5.4._.1
Delay
ENTER
N
1y.5.4._.2
<Set> State
ENTER
L
1y.5.4._.3
<Cleared> State
ENTER
L

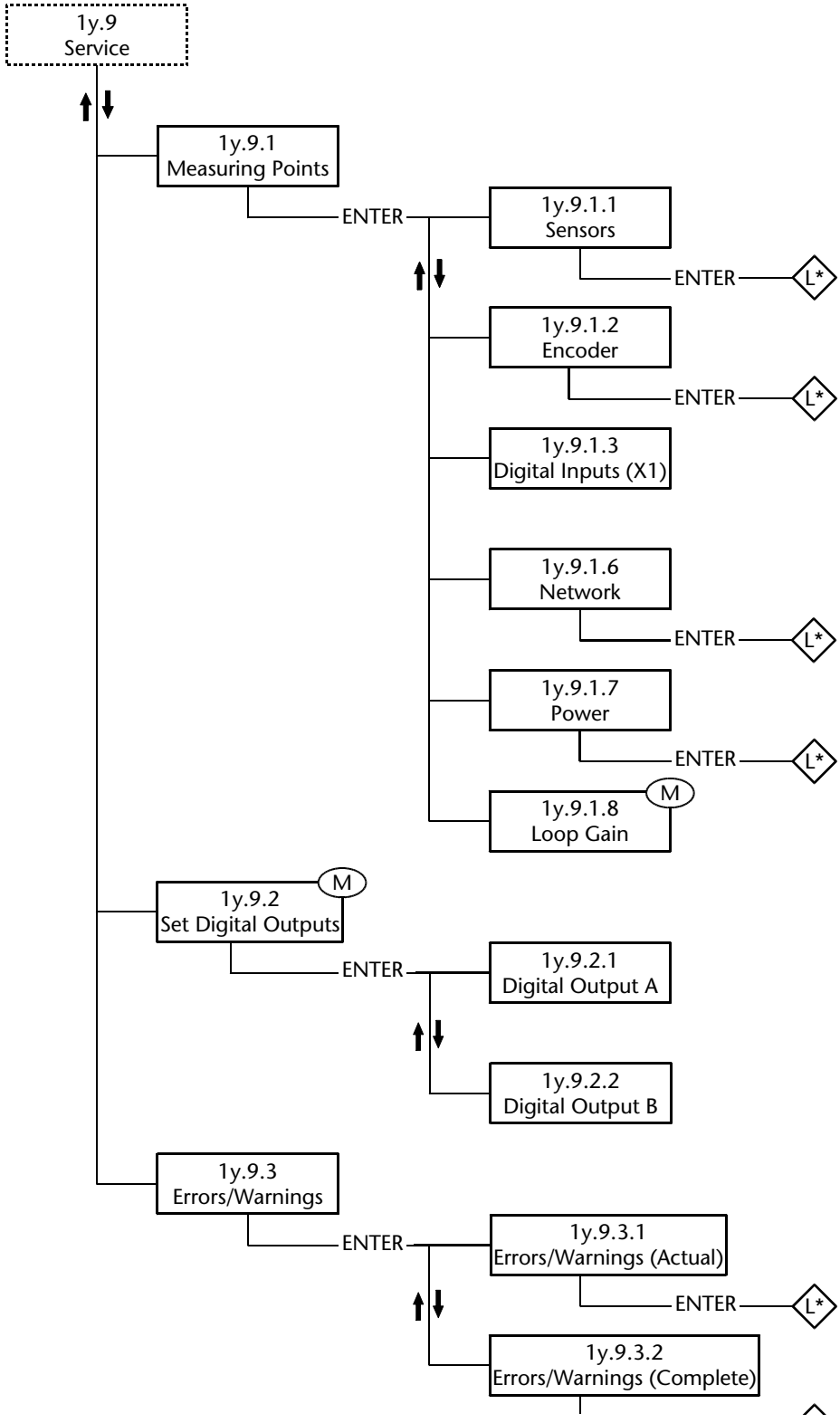


D-MAX.Menüstruktur Prozessor.fm


1y.7
Configuration
1y.7.1
Names
ENTER
1y.7.1.1
Device
ENTER
N*
1y.7.1.2
Drive
ENTER
N*
1y.7.2
Serial Number
1y.7.3
FW Number
1y.7.4
SW Number
1y.7.5
Distributed System
ENTER
1y.7.5.1
Application ID
ENTER
N
1y.7.5.2
Sub Function
ENTER
N
M
1y.7.7
Backup
ENTER
1y.7.7.1
Replace previous Backup ?
M
1y.7.8
Restore
ENTER
1y.7.8.1
Restore from previous backup
1y.7.8.2
Restore factory settings



D-MAX.Menüstruktur Prozessor.fm


1y.9
Service
1y.9.1
Measuring Points
ENTER
1y.9.1.1
Sensors
ENTER
L*
1y.9.1.2
Encoder
ENTER
L*
1y.9.1.3
Digital Inputs (X1)
1y.9.1.6
Network
ENTER
L*
1y.9.1.7
Power
ENTER
L*
M
1y.9.1.8
Loop Gain
M
1y.9.2
Set Digital Outputs
ENTER
1y.9.2.1
Digital Output A
1y.9.2.2
Digital Output B
1y.9.3
Errors/Warnings
ENTER
1y.9.3.1
Errors/Warnings (Actual)
ENTER
L*
1y.9.3.2
Errors/Warnings (Complete)

13 OPERATOR INTERFACE MENU STRUCTURE

This section describes the menu structure that belong exclusively to the operator interface. These menus are used to set up the operator interface.

Note:
This menu structure is not available in this format when a virtual operator interface is used.

Legend

A numeric entry follows.

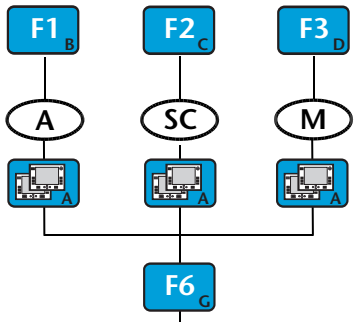
An entry follows in which numbers and letters are possible.

A list follows from which the entries can be selected.

A list follows which contains various displays, but does not allow for entries.

Move between the menus of a level with the "Up-Arrow" and "Down-Arrow" keys.

D-MAX.Menüstruktur Bedieneinheit.fm

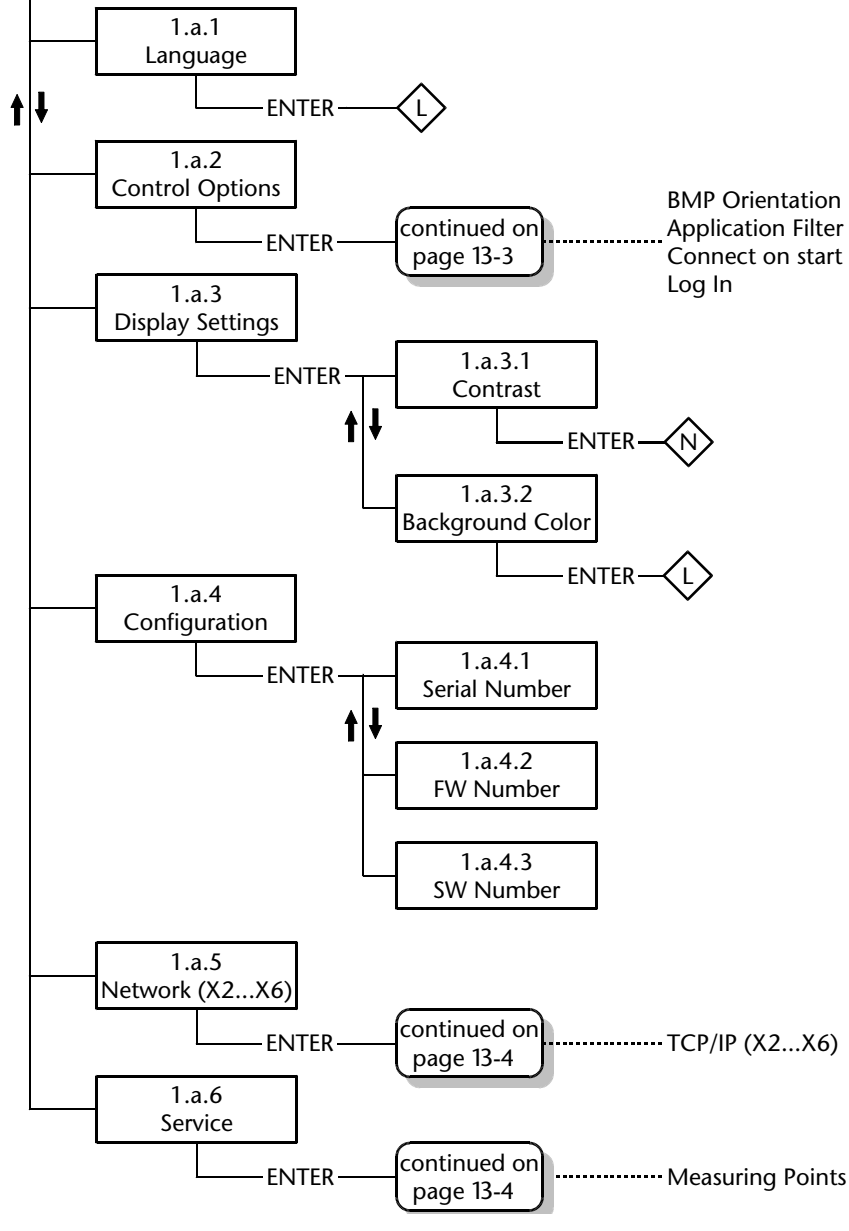


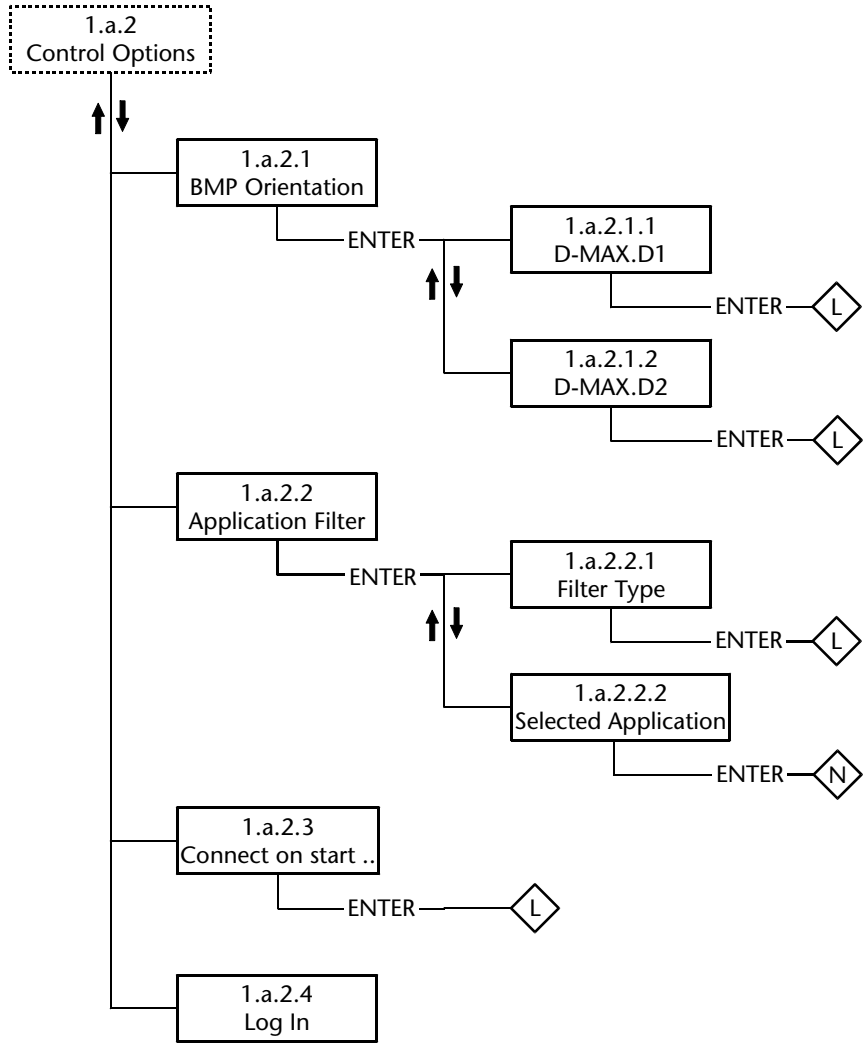
Hold the A key down for longer than 2 sec.

Menu identification of starting menu:
b.a

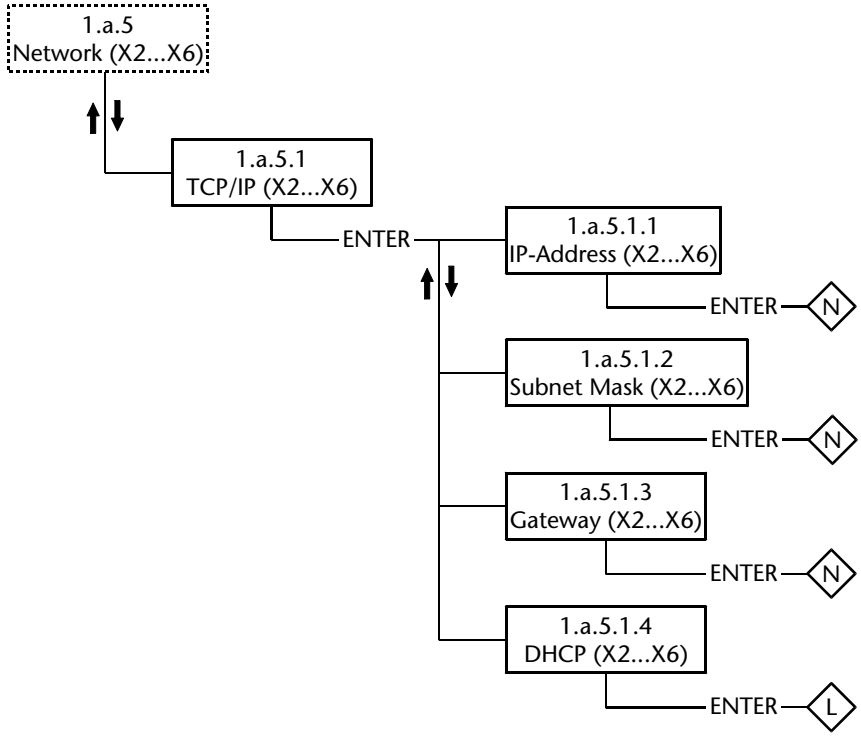
"**a**" is derived from the selected device.

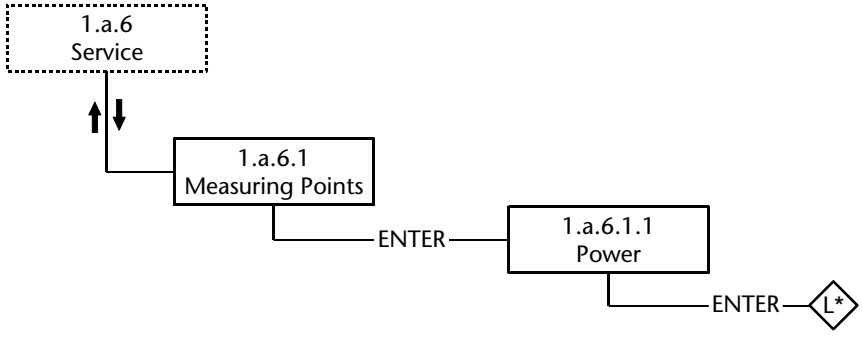
"**b**" is derived from the selection of the filter type
The menus of this structure are described starting from b = 1 (View of





D-MAX.Menüstruktur Bedieneinheit.fm


1.a.5
Network (X2...X6)
1.a.5.1
TCP/IP (X2...X6)
ENTER
1.a.5.1.1
IP-Address (X2...X6)
ENTER
N
1.a.5.1.2
Subnet Mask (X2...X6)
ENTER
N
1.a.5.1.3
Gateway (X2...X6)
ENTER
N
1.a.5.1.4
DHCP (X2...X6)
ENTER
L


1.a.6
Service
1.a.6.1
Measuring Points
ENTER
1.a.6.1.1
Power
ENTER
L*

14 GLOSSARY

ASC (Automatic Sensor Control)

If the web is outside of the defined range of the sensor's field of vision, guiding is stopped.

Automatic

Operating mode
The web course is automatically corrected by an actuator based on sensor information.

Automatic calibration

The Gain and Polarity parameters are calibrated automatically.

CM (Customized Menu)

Customer-specific system menu
This system menu is only present if the D-MAXE controller has been programmed accordingly.

Deadband

A range is defined around the guide point in the sensor field of view in which guiding is reduced or is not active at all in the "Automatic" operation mode.

Device

Devices refer to the drives on the D-MAXE Controllers present on D-MAXE the network as well as any customer-specific CM system menus or Gateways.

Drive

The drive may be the motor of an actuator, for example, which provides the necessary correction within a control loop.

Encoder

Incremental position transducer to record positions

Hardlock

The Hardlock parameter allows you to maintain the actuator active in its position in "Manual" mode.

Job

Jobs are types of controllers that are in principle available in a D-MAXE system.

LOSS OF NULL

A signal asserted while in Automatic mode when the web is sensed outside of a predetermined area of the active proportional band.

LS (Line Speed)

Designation of the web speed signal which is supplied to X1.

Manual

Operating mode
There is no guiding of the web course.

OI (Operator Interface)

Designation of an operator interface.

OI-B: basic version
OI-N: network version

OSC

Designation of an optionally available oscillator.

PIC

Designation of an optionally available controller.

RCAL

Designation of an external input device for sensor calibration

RGPC (Remote Guide Point Control)

Designation of an external activation system for offset of the guidepoint.

SC (Servo-Center)

SC is the abbreviation for the "Servo-Center" mode.

Servo-Center

Operating mode
The actuator is moved to the mechanical center position depending on the Servo-Center transducer.

Servo-Center position

Then the control rollers of the actuator are aligned parallel to the rollers of the customer system.

Servo-Center transducer

Assigns the Servo-Center position for "Servo-Center" mode

SGC (Speed Gain Control)

Guiding depends on web speed.

Supplementary Operating Instructions

Customer-specific software adjustments of the software are described in the "Supplementary Operating Instructions" for the D-MAXE system and are included in the system documentation.

Web / strip

The web / strip is the customer's material, which is affected in its direction of movement as it is guided by the D-MAXE system.

These Operating Instructions will refer only to the ‘web’.

15 SERVICE

Requests for Service

When requesting service, please have a copy of the order confirmation ready with the order number.

When ordering replacement parts, please indicate, (where possible) Part Number, Drawing Number and Model description (see *page 3-1*).

Please be careful to keep all documents accompanying the product in a safe place. This will allow us to help you more quickly in the event that service is required.

Addresses

To request service, or if you need replacement parts, please contact one of the following addresses.

Fife-Tidland GmbH

Max-Planck-Straße 8
65779 Kelkheim
Deutschland

Siemensstraße 13-15
48683 Ahaus
Deutschland

Tel: +49.6195.7002.0
Fax: +49.6195.7002.933
E-Mail: service@maxcess.eu
Web: www.maxcess.eu

Maxcess

222 West Memorial Road
Oklahoma City, OK 73114, USA
Tel: +1.405.755.1600
Fax: +1.405.755.8425
E-Mail: service@maxcessintl.com
Web: www.maxcessintl.com