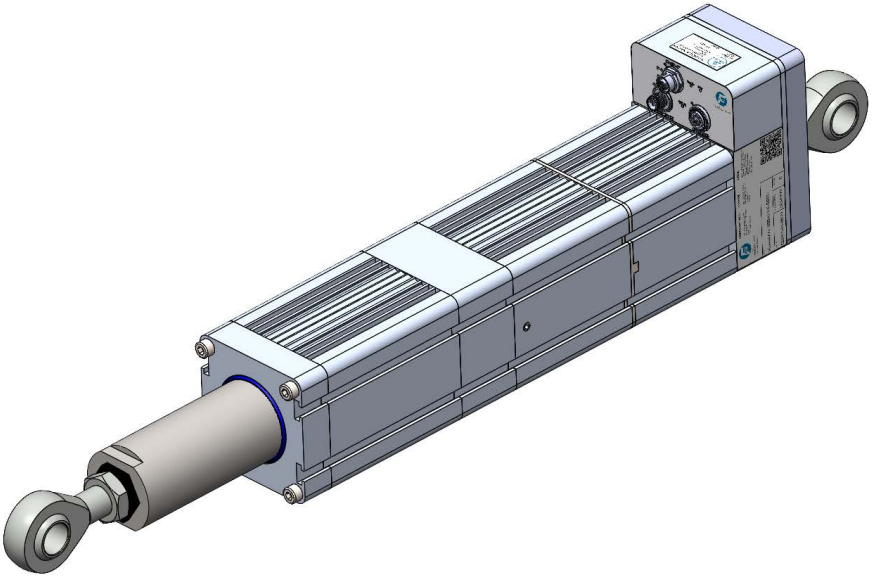
FIFE GUIDING SOLUTIONS

A MAXCESS BRAND

FIFE SmartDrive Actuator

Operator Interface manual



EN

MI 2-336

Web Guiding system
Versions: 5000N, 7500N&10000N
Edition 05/2025

1 INTRODUCTION

Copyright information

All of the information herein is the exclusive proprietary property of Maxcess International, and is disclosed with the understanding that it will be retained in confidence and will neither be duplicated nor copied in whole or in part nor be used for any purpose other than for which disclosed.

Language

These Operating Instructions are a translation. The original Operating Instructions were composed in Chinese.

Theory of operation

The SmartDrive Actuator is designed for use in industrial equipment that is involved with processing a moving web. It is typically installed with the sensor to provide lateral steering of the web for winding, rewinding, or connected with a guide frame to engage in any important mid-stream process.

2 SAFETY INSTRUCTIONS

Instructions for use

To ensure safe and problem free installation of the SmartDrive Actuator, the SmartDrive Actuator must be properly transported and stored, professionally installed and placed in operation. Proper operation and maintenance will ensure a long service life of the device. 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 SmartDrive Actuator.
Note: The safety information may not be comprehensive.
Please note the following:

- The content of these operating instructions
- Any safety instructions on the device
- The machine manufacturer's specifications
- All national, state, and local requirements for installation, 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

Signal words

The signal word **DANGER** refers to the danger of death or serious bodily injuries.
The signal word **WARNING** refers to the danger of moderate to severe bodily injuries.
The signal word **CAUTION** refers to the danger of slight to moderate bodily injuries or material damage.
The signal word **NOTICE** refers to the possibility of damage to equipment.

Safety.fm

Symbols

Reference to general hazards that may result in bodily injuries

Refers to danger of injury caused by crushing

Refers to danger of injury caused by cutting

Refers to danger of injury caused by roller feed

Refers to danger of injury caused by burning

Refers to general hazards that will result in damage to the device or system

Basic safety information

Proper use

- The SmartDrive Actuator is intended to be used on machines or systems to guide a web of material.
- For indoor operation, see environmental specifications.

Improper use

- Operation outside the technical specifications.
- Operation in an Ex-area or intrinsically safe area.
- Operation as a safety component. The SmartDrive Actuator does not hold the web position if power fails.
- Outdoor operation.
- Any other use than the proper use shall be deemed inappropriate.

Installation and commissioning

- Disconnect power from the before connecting or disconnecting any cables.
- All cable connectors must be tightened sufficiently to provide the required connection for the cable shielding.
- Any SmartDrive Actuator which is damaged must not be installed or put into operation.
- Only perform installation, maintenance or repair tasks on the SmartDrive Actuator when the machine has been stopped and is secured from being turned on.
- Only perform installation, maintenance or repair tasks on the SmartDrive Actuator when there is no electrical power in the system.
- The SmartDrive Actuator must be securely mounted before being placed in operation.
- Only replacement parts obtained from Maxcess may be used.
- No modifications may be made to the SmartDrive Actuator.
- Do not place electrical cables under mechanical strain.

WARNING – Death or injury can result from static electric shocks. Moving webs of material can produce large static voltage potentials. Protect against electric shocks by installing a conductive connection between the terminal marked with the PE symbol on the power connector and the PE circuit of the building or machine.

WARNING – The SmartDrive Actuator performs linear reciprocating motion during operation, which could cause injury due to crushing. Appropriate protective guards must be installed by the user according to his use of this product.

WARNING – Death or injury can result from unexpected movement.
Protect against unexpected movement by removing electrical power from the SmartDrive Actuator and the machine into which the SmartDrive Actuator is being installed.

WARNING – Danger of falling down or muscle or skeletal injury during installation.
These SmartDrive Actuators, especially the larger designs, are heavy. Appropriate equipment is to be used and the safety rules of the company must be observed.

Safety.fm

Operation

WARNING – The SmartDrive Actuator contains rotating and moving parts which could cause injury due to crushing. Do not touch anything on or in the vicinity of the moving or rotating parts. Appropriate protective guards must be installed by the user according to his use of this product.

Maintenance and Repair

WARNING – Death or injury can result from unexpected movement.
Protect against unexpected movement by removing electrical power from the SmartDrive Actuator and the machine into which the SmartDrive Actuator is installed.

WARNING – Danger of injury from crushing.

Maintenance and repair tasks on the SmartDrive Actuator must be performed only when the machine has been stopped and has been secured from being turned on again.

WARNING – Danger of falling down or muscle or skeletal injury during maintenance and repair.
These SmartDrive Actuators, especially the larger designs, are heavy. Appropriate equipment is to be used and the safety rules of the company must be observed.

Decommissioning

The SmartDrive Actuator must be disposed of in accordance with all the applicable national, state and local regulations.

Warnings

The SmartDrive Actuator may be remotely controlled via net control. As with any net-controlled device, when remote net control of the device is implemented, there is the possibility of movement of the actuator when remote net commands are issued. Therefore, any time personnel are near the actuator, it is recommended that standard safeguards be taken to prevent injury. During servicing of the equipment, to prevent injury to personnel, it is recommended that standard Lockout/Tagout procedures be used.

The SmartDrive Actuator Operator screen should not be used while the machine is running. If it is necessary for the operator to use the Operator screen while the machine is running, precautions must be taken to protect the operator from injury due to moving material and machinery. This can be accomplished by either surrounding the Operator screen with a safety screen, or by remote mounting the Operator screen in a safe location

3 OPERATOR INTERFACE

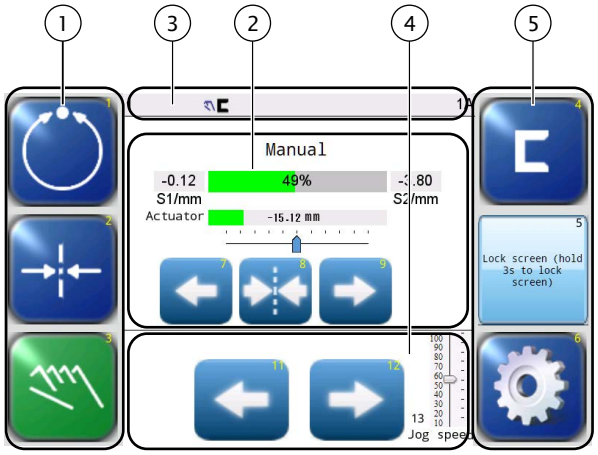
In general

The SmartDrive Actuator operator interface has a touch screen.

NOTICE
Danger of damaging the touch screen with pointed and/or hard objects (such as pens or screwdrivers).
⇨The touch screen must only be operated with a finger or suitable touch screen stylus.

User level

Operator interface
Rotated 0° or 180°



Operator interface
Rotated 90° or 270°

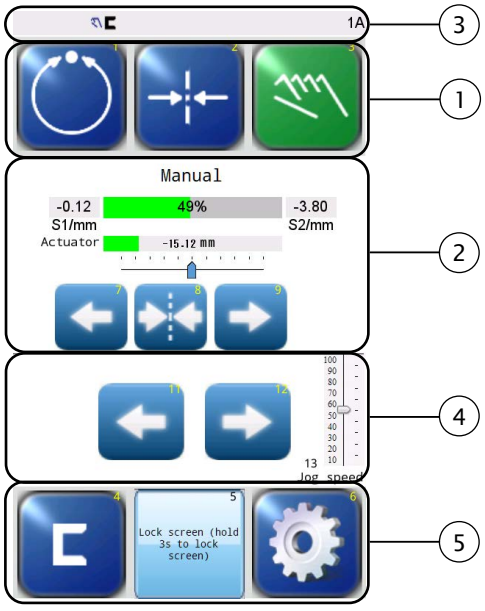


Figure 3.1: Operator interface SmartDrive Actuator and its rotations

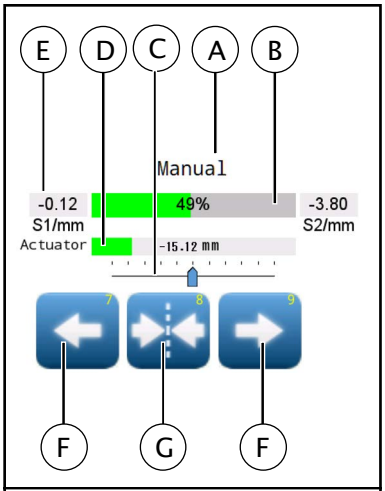


Figure 3.2: Section 2

Section 1

- Select operation modes AUTOMATIC, SERVO-CENTER, and MANUAL
- The currently selected operation mode is marked in green.

Section 2

- Display:
  - A current operating mode
  - B Signal level of the active sensor - AUTOMATIC and MANUAL
    Position of the actuator - SERVO-CENTER
  - C Reference point offset of the active sensor-- AUTOMATIC and MANUAL
    Reference position of the actuator - SERVO-CENTER
  - D Actuator position display and recorded in millimeters
  - E Information about the web position recorded by the sensor (S1 and S2) in mm
- Buttons:
  - F Guide point offset - AUTOMATIC and MANUAL
    Move the actuator with the set step size of the SC Offset- SERVO-CENTER
  - G Resetting the guide point - AUTOMATIC and MANUAL
    Position of the actuator in the center- SERVO-CENTER

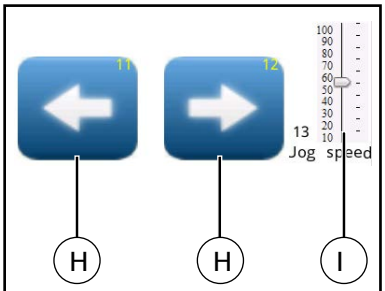


Figure 3.3: Section 4

Section 3

- Status line, is always available in this form
- Display of menu identification as well as statuses, errors, etc.

Section 4

- Buttons:
  - H Press or hold to move the actuator
  - I Slide control to change the travel speed

Section 5

- Keys for selecting and displaying the sensor, to disable / enable the display and to set up the system

Menu level

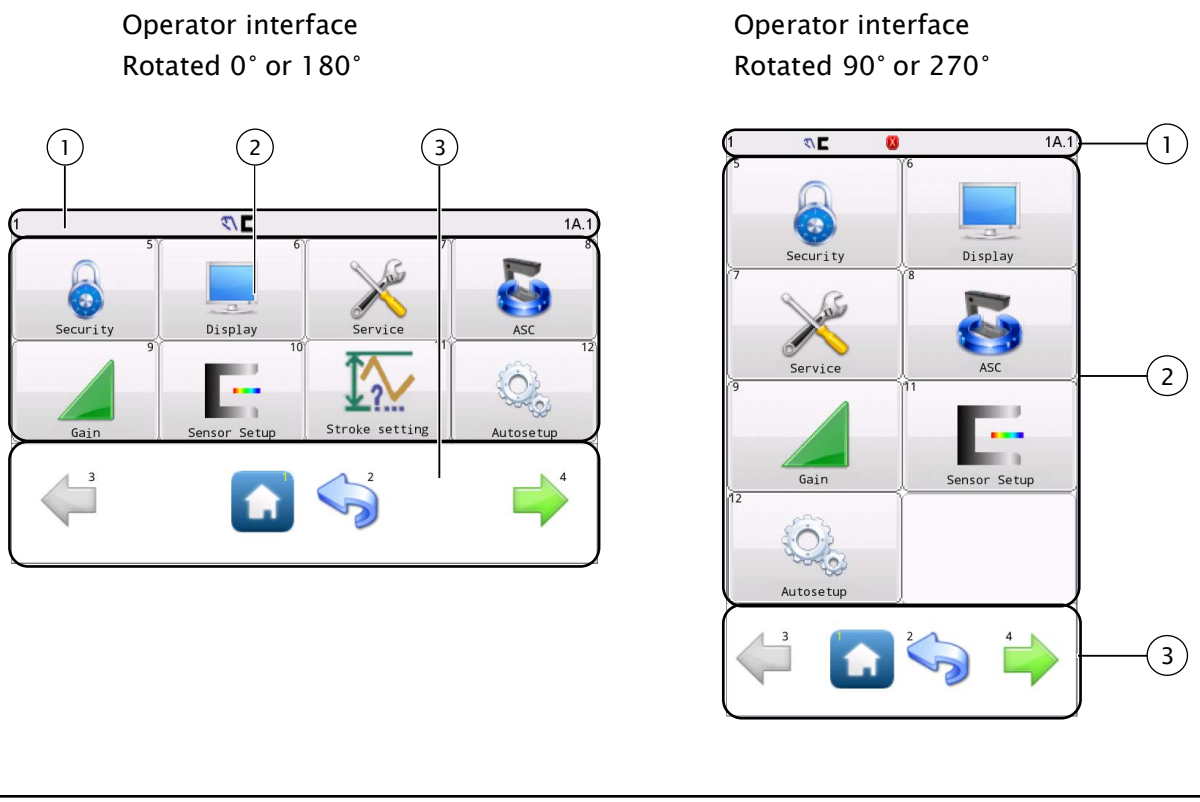


Figure 3.4: Operator interface SmartDrive Actuator and its rotations

Section 1

- Status line, is always available in this form
- Display of menu identification as well as statuses, errors, etc.

Section 2

- Select menus
  Several pages are available on the first menu level.

Section 3

- Elements for navigating in the menu level
  Keys represented in gray cannot be operated in the current operation state.

Buttons and Displays

User level

Button 1 - Select operating mode **AUTOMATIC***
The web course is guided by an SDA based on sensor information.
The bar graph represents the position of the material web in the sensor's field of view.

Button 2 - Select operating mode **SERVO CENTER***
The SDA is moved to the mechanical center position.
The bar graph indicates the current position of SDA.

Button 3 - Select operating mode **MANUAL**
There is no guiding of the web course. The settings of the SmartDrive Actuator (5000,7500&10000N) can be changed.
The bar graph represents the position of the material web in the sensor's field of view.

Key disabled
The keys for selecting operation modes Automatic, Servo-center and Manual are disabled. The SmartDrive Actuator (5000,7500&10000N) is operated by means of external control signals.

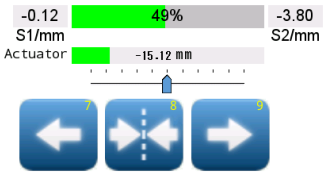
→ *1x.3.3. Local Control, page 4-37*

Button 4 - Select **Sensor mode***
The sensor(s) that will be used to monitor the web position when the system is in the AUTOMATIC operation mode is/are selected.
Sensors can only be selected in the MANUAL and SERVO-CENTER operation modes.

If there is only one sensor in the system, this selection is not possible. The key appears in gray and has no function.

Button 5 - **Lock screen**
Hold 3s to lock or unlock the screen.

Button 6 - Select **Setup**
Use to enter the Setup Menus for configuring and adjusting the SmartDrive Actuator.



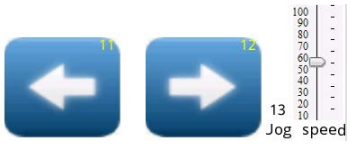
Button 7, 8, 9 - Move the **guide point***
In the AUTOMATIC and MANUAL operation modes, the guide point can be moved in the sensor field of view with the Right and Left arrow keys. The display indicates the position to which the guide point was shifted.
The middle key resets the guide point to 0, which is 50% of the sensor field of view.
In AUTOMATIC operation mode, the change is effective immediately, but in MANUAL operation mode, the change is only effective when switching to AUTOMATIC operation mode.

In Servo-center operation mode,use the Left and Right arrow keys to move the actuator.The center key resets the actuator to the default middle position.

Note: The step size for keys 7 and 9 is adjustable.

→ *1x.3.2. ADV Settings..., page 4-35*

Button 10 - **Guide point capture****
This optional button sets the guide point of the active sensor mode to the current web location.
This allows guiding to begin at the current web location(Captured at Servo-Center /Manual mode) when the Automatic mode is initiated.
This key with its functionality must be activated in the OI Settings menu.
→ *1x.1.2.1.5 OI Settings, page 4-5*



Button 11, 12 - **Move drive***
The lower Left and Right arrow keys are used to move the drive in all operation modes. The working direction of the arrow keys can be changed.
→ *Jog Enable, page 4-26*

Jog speed
The button is used to adjust the speed of jogging the guide.

Button 13 - **Network link button*****
This optional is used to select/switch the guide connected to the OI screen.

This allows to scan to update and show all the devices in the operator level screenthat that are on the same network as OI if this function is enabled in screen *1A.1.2.1.5*.

* These keys with their respective functionality must be activated in menu *1A.2.2 Control Options.*
→ *1x.2.2. Control Options, page 4-26*

** This key with its functionality must be activated in menu *1A.1.2.1.5 OI Settings*.
→ *1x.1.2.1.5 OI Settings, page 4-5*

***This key with its functionality must be activated in menu *1A.1.2.1.5 OI Settings*.
→ *1x.1.2.1.5 OI Settings, page 4-5*

Menu level

Back
Return to the previous menu level.

Home
Return to the user level screen

or

Arrows
Switch between the pages of a menu level

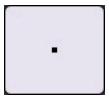
The arrows are grayed-out when no more choices are available in the respective direction.

Accept
Save a changed value in a menu and return to the previous screen

Cancel
Discard a changed value in a menu and return to the previous screen

Delete
Delete entries in a menu

Numeric keypad
Enter numeric values or passwords

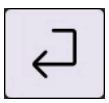


Some entries accept a decimal point

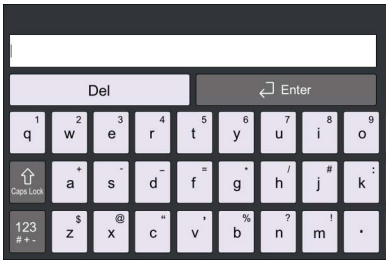
Some entries accept positive and negative values

Erase the current entry

Exit the numeric keypad without saving



Save the value that was entered
The entered value is checked for permitted limit values and applied.
If the entered value is outside of the permitted limit values, however, the maximum possible value is displayed in red type.
► Delete the entry with the DEL key and enter the value again or cancel with the ESC key and close the window.



Keyboard
Enter designations

Status line

The status line contains complete information about the SmartDrive Actuator. It is always available in this form.

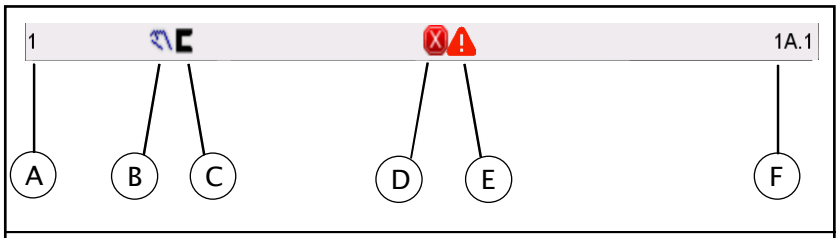


Figure 3.5: Status line elements

A Display of the SDA network address,which is in the process of being configured,address can be set up to 30.

B Display of the selected operating mode


- Manual


- Servo Center


- Automatic

C Display of the active sensor


- Edge sensor - Edge left

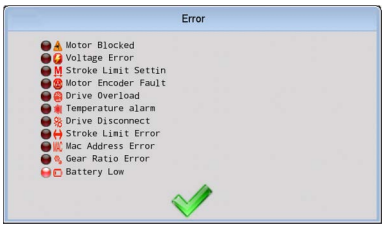

- Edge sensor - Edge right

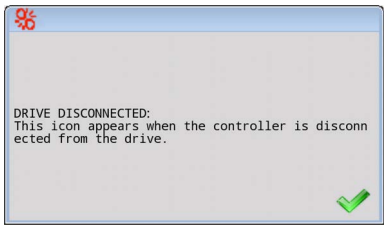

- Edge sensor - Center guiding


- Line sensor - Line center


- Line sensor - Material or line edge

D Display of icons indicating the current status of the SmartDrive Actuator
For a brief explanation, tap the icon on the operator interface.





E Display of icons indicating the current errors of the SmartDrive Actuator

Click the icon to view the error list, where the LED lights indicate the errors currently occurring.

For a brief explanation, tap the error icon on the list.

F Each menu has its own identification. This makes it possible to retrace every step in the control tree of the SmartDrive Actuator precisely.

→ *Menu identification, page 4-1*

Setting up the operator interface

Various menus are available to set up the operator interface itself.

- **1x.1.1. Security** menu
  Configuration of authorizations
  → *1x.1.1.1 Security, page 4-2*
  → *Security (Access management), page 3-10*
- **1x.1.2. Display** menu
  Settings of the user interface
  → *1x.1.2.1 Display*, page 7-4

Security (Access management)

Authorizations can be configured to prevent unauthorized changes to various settings of the SmartDrive Actuator. The authorization settings are deactivated by default, but they can easily be configured and activated. Access to the menus is individually programmable for three access levels.

Access level

Access is divided into three levels, each with its own assigned authorizations. Level 1 has the fewest authorizations, level 3 the most. The authorizations assigned to a level can be configured individually.

- If access management is activated, the authorization of the currently logged in operator is displayed in the status line by a key icon with the corresponding access level.
- These icons do not appear if access management is deactivated.

Level 1 - User level

- No password identification required
- Most restrictions are in place

Level 2 - Privileged user

- Password identification required
- For operators who are permitted to change a few individual settings on the SmartDrive Actuator

Level 3 - Administrator

- Password identification required
- Normally unrestricted access to all menus

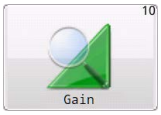
Note:
The restrictions of all levels can be configured as desired in the *Menu Protection* menu. However, some menus cannot be deselected for level 3.
→ *1x.1.1.1.4 Menu protection*, page 7-3

Display of authorizations

The **SETUP** button on the user level screen and each menu in the SmartDrive Actuator has programmable access modes for each of the three possible SmartDrive Actuator authorization levels. The button appearance of each menu item indicates which access mode is active for the current login authorization level. The possible button appearances are shown below using the **GAIN** button as an example.

No Access

The “Lock” icon superimposed on a button indicates that access is not allowed from the current login authorization level. Pressing the button will prompt for numeric pass code entry and will only allow access if the entered code raises the login authorization level high enough to permit access.



Read-Only-Access

The “Magnifier” icon superimposed on a button indicates that the menu has read-only access from the current login authorization level. The user is allowed to view the settings but not change them.

Full Access

The button will appear with no access modifier when there are no restrictions for the menu. This is also the button appearance when security is disabled.

4 MENU

Notes

This section is a description of menus that are needed for commissioning and to make other settings for SmartDrive Actuator.

Menu identification

Each menu has its own identification. This makes it possible to retrace every step in the control tree of the SmartDrive Actuator precisely.

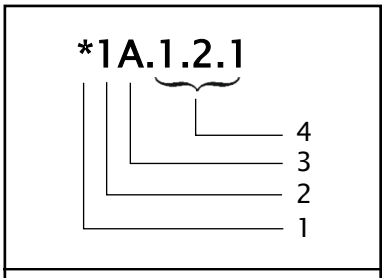


Figure 4.1:

1. **Local Control**
   Identifies the status of local operation
   → *1x.3.3. Local Control, page 4-37*
2. **Operating mode**
   Indicates the active operating mode
   1 - Manual
   2 - Servo-Center
   3 - Automatic
3. **Sensor mode**
   Indicates the active Sensor
   A - Sensor S1
   B - Sensor S2
   C - Sensor S1 - S2
4. **Menu levels**
   Identifies the position of a menu within the menu structure of the SmartDrive Actuator

Conventions

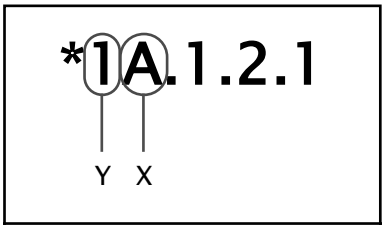


Figure 4.2: Placeholder

X

Placeholder "X" is the currently selected sensor mode.

Example: X = A = Sensor S1

This place in the menu identification changes depending on the sensor mode selected by the customer.

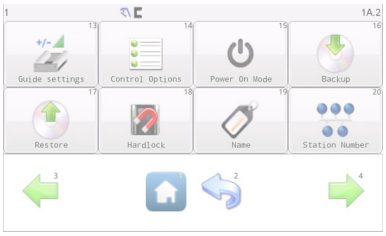
Y

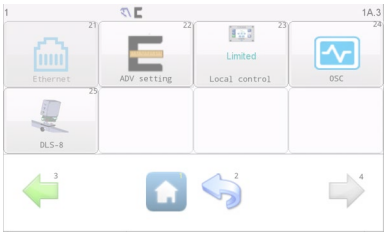
The menus in the SmartDrive Actuator are described in MANUAL mode (Y = 1), since that is the only mode in which all menus can be reached.

Menu.fm

1x.1.1.1 Security

available in the operating modes:
MANUAL – SERVO-CENTER – AUTOMATIC



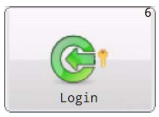


This menu is used to configure authorizations related to operation of the SmartDrive Actuator.

1x.1.1.1.1 Logout

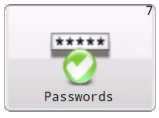
This key is used by a level 2 or 3 operator to relinquish access and reset the access level to 1.
► If the *Enable security.* function is not selected, the message "Security is not enabled." appears.

1x.1.1.1.2 Login



This key is used by an operator with a higher access level to log in for access. To do this, a numeric password must be entered in the keypad that appears. The access level is changed according to the password that was entered.
► If the *Enable security.* function is not selected, the message "Security is not enabled." appears.

1x.1.1.1.3 Passwords



This menu is used to manage the access levels.
→ *Security (Access management), page 3-10*

- **Enable security**
  Activate or deactivate security feature
- **Automatically log out after timeout**
  If the operator is in the password-protected menus of levels 2 and 3, the operator will be logged out automatically and returned to level 1 after the time that is entered.

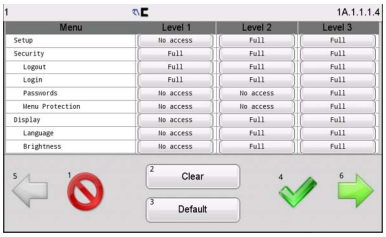
- **Access level 2 or 3**
  Manage passwords for operators of access levels 2 and 3
  ► Pass codes could be from 1 to 9 digits in length.

Note:
However, if the menu is exited by selecting *Enable security* without entering a password in level 3 with the **Accept** key (✓), an error message appears. This prevents access to configured access levels in the system before an administrator password has been defined.

1x.1.1.1.4 Menu protection

Access is configured to the menus for the different access levels.

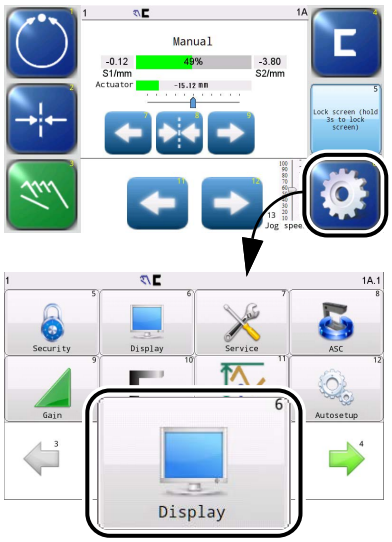
Each menu is represented in the list control along with the access permission for each of the three authorization levels. Submenu entries are indented according to the menu hierarchy.



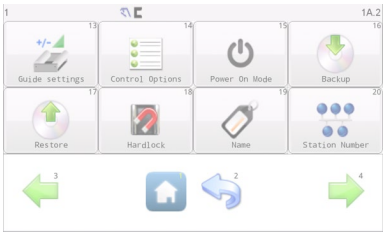
- Tap on the entry to be changed and switch between
  - Full
  - Read only
  - No access
- **Clear** Button
  Apply full access to all entries
- **Default** Button
  Preset the factory default settings

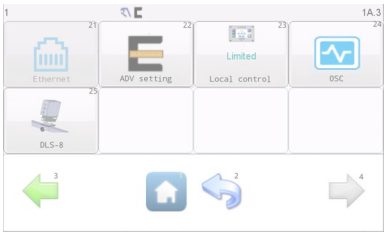
Menu.fm

1x.1.2.1 Display



available in the operating modes:
MANUAL – SERVO-CENTER – AUTOMATIC





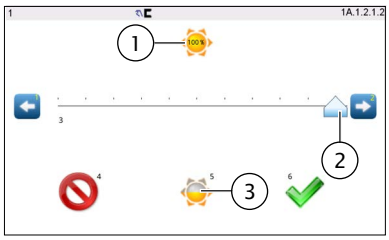
This menu provides access to the operator interface settings

1x.1.2.1.1 Language

The language for the menu texts is selected. The SmartDrive Actuator (5000,7500&10000N) supports 14 languages.

1x.1.2.1.2 Brightness

The intensity of the display backlight is set.

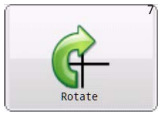


1 **Display** of the set intensity as a %

2 Press or hold the **arrow keys** for remote control of the illumination
Slide control to change the illumination quickly

3 Press the **key** to change the illumination to 50%

1x.1.2.1.3 Rotate

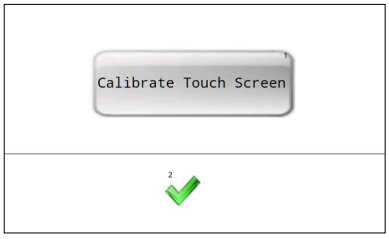


The alignment of the user interface can be adapted to the mounting situation. The user interface can be rotated 0°, 90°, 180° or 270° for this purpose.

After the selected rotation has been applied, the screen remains blank for a moment and then starts in the new alignment.

1x.1.2.1.4 Calibrate Touch Screen

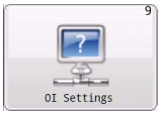
This menu is used to recalibrate the accuracy of the touch screen. This is only necessary if button reactions appear to be out of sync with the displayed button locations.



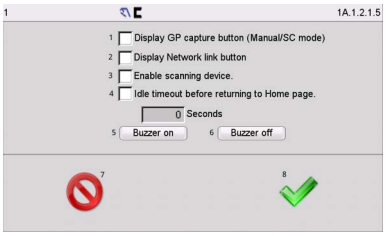
- Button **Calibrate Touch Screen**
  ► start the process
  - touch the screen in each of the 5 locations as prompted.

Note:
A stylus is recommended to improve the accuracy of calibration.

1x.1.2.1.5 OI Settings



This menu provides access to various operator interface settings.



- additional button **Display GP capture button(Manual/SC mode)**
  enables the appearance of an additional button in the User Level screen
  → *page 3-5*

- additional button **Display Network link**

  enables the appearance of an additional Network link button in the User Level screen.
  → *page 3-5*

- **Enable scanning device**

  enables to scan all the connected devices everytime press the Network link button in the User Level screen.

"1"- Indicates the guide address which connected to the OI screen.

"2"- Network link button(if enabled in screen 1A.1.2.1.5)

► press to select/switch the guide connected to the OI screen.
► Press to scan to update and show all the devices in the operator level screenthat that are on the same network as OI

"**3**"- Indicates the name of the OI-connected guide.

→ *1x.2.8. Station Number, page 4-33*

Idle timeout before returning to Home page:
After a time specified here the system exits a menu
► A clock icon appears in the status line of the selected menu.
→ *Menu Timeout, page 7-1*

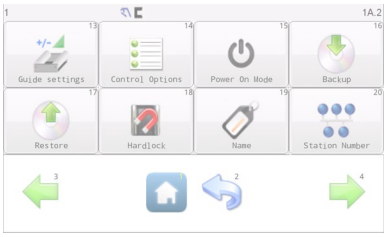
► Some service-related menus are excluded from the timeout option. They are identified by an orange clock icon in the status line.

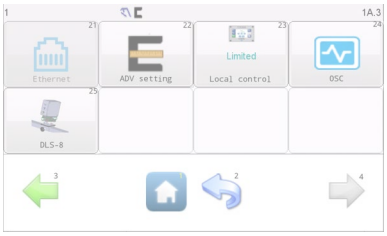
Activates the audible feedback for touch screen interactions.

Deactivates the audible feedback for touch screen interactions.

1x.1.3.1 Service

available in the operating modes:
MANUAL - SERVO-CENTER - AUTOMATIC



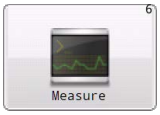


The purpose of this menu is to display values that provide important information for customer service about the settings of the SmartDrive Actuator (5000,7500&10000N).

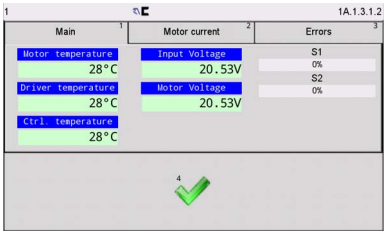
1x.1.3.1.1 About (device data)

Product information

1x.1.3.1.2 Measure

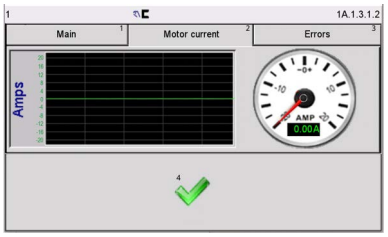


Display of measured values and measurement errors of the SmartDrive Actuator (5000,7500&10000N)



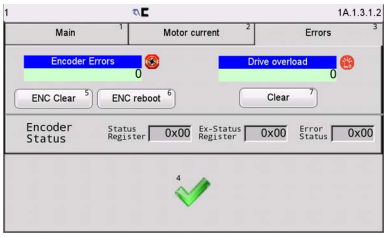
Main tab

Display the temperature of the Motor, Drive, Controller board ,the state of sensors,and Voltage values.



Motor Current tab

- Analog and digital display for monitoring the motor current
- Diagram showing the current activity of the motor current over time



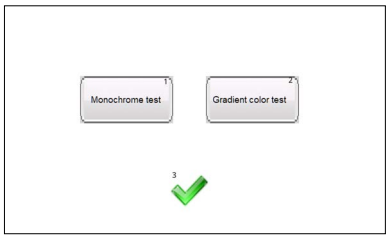
Errors tab

Monitor the encoder and drive status.

- Display of the Encoder errors, and Drive overload prompt.If an error occurs or the drive overload, the corresponding value will be 1.
- **ENC Clear** button,clear the encoder
- **ENC reboot** button,reboot the encoder
- **Clear** button,clear the drive overload record

1x.1.3.1.3 Color Test

This menu is used to detect if the screen has bad dots, wrong rows or pixel dots, abnormal colors, and similar problems. The display appears in six different colors to show this.

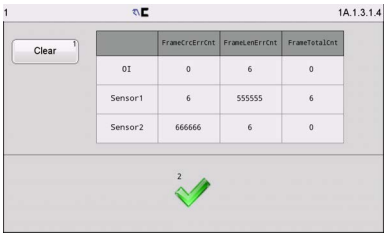


- **Monochrome test**
  Every time you tap on the display the color changes until the menu itself is reached again.
- **Gradient color test**
  Every time you tap on the display the color changes until the menu itself is reached again.

1x.1.3.1.4 Com statistics

This menu shows the communication statistics of the individual components. The display of running network communication statistics is updated live.
The following is displayed

- communication status of the control board, including the communication data statistics of the control board with the OI,
- Sensor 1 and
- Sensor 2.



FrameCrcErrCnt
Indicates the total number of packets with verification errors

FrameLenErrCnt
Indicates the total number of packets with length errors

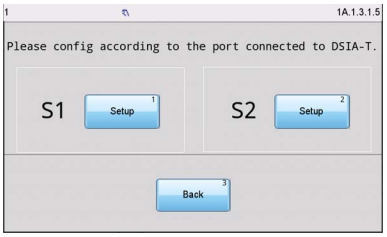
FrameTotalCnt
Indicates the total number of packets normally communicated

- **Clear** button
  Resets the communication statistics

1x.1.3.1.5 DSIA-T

This menu is used to configure the DSIA-T.

DSIA-T is used to convert the analog signal of the sensor to a digital signal to make analog sensors compatible with SmartDrive Actuator (5000,7500&10000N).



Click the Setup button(S1,S2)to config the DSIA-T according to your connected port with controller.

Version: DSIA-T version

Sensor type:

- **Generic**
- **SE-22**
- **SE-46C**

Sensor number:

- **One**- The DSIA-T is connected with one sensor
- **Two**- The DSIA-T is connected with two sensors(Only one SE-46C can be connected to one DSIA-T,when SE-46C is connected,**Sensor number** is one and can not be changed)

Sensor current: (Options)0-10mA/0-20mA/4-20mA.

Sensor F0V:Show and Set the sensor dimensions.

Read all:Refresh the DSIA-T setup.

Faulty:

Communication exception, read failed?
► Please check the DSIA-T connection.

Communication exception, write failed!
►Please check the connectors or controller.

Write failed!
► Please check if the DSIA-T is working well.

The DSIA-T must be reset after the sensor type/number is changed.

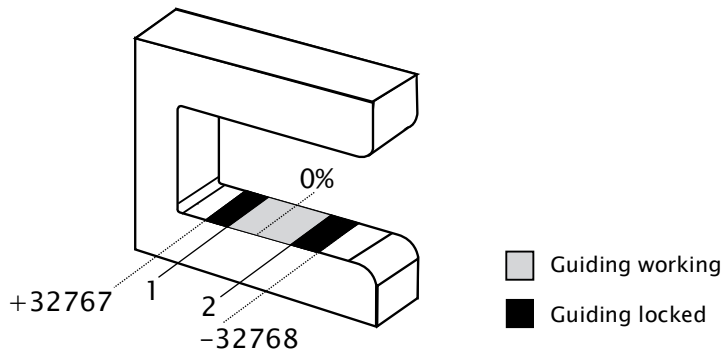
Menu.fm

1x.1.4.1 ASC

available in the operating modes:
MANUAL – SERVO-CENTER – AUTOMATIC

ASC (Automatic Sensor Control) is used to ignore sudden changes in the sensor input. A typical application is a torn web or interrupted lines.
If the web leaves the restricted sensor field of view, guiding is locked and does not respond to the large signal change of the sensor.

ASC must first be configured and activated separate for each sensor mode in the *ASC Settings* submenu before this job can be turned on with the **ASC on** key.



1 – Threshold 1 (positive)
2 – Threshold 2 (negativ)e

Figure 4.3: Example for the ASC parameter

If the SmartDrive Actuator 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 a symbol in the status line.

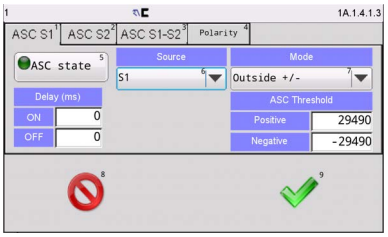
If the web leaves the limited field of view of the sensor, guiding is blocked.

This icon appears in the status line when ASC has been triggered.
When ASC is turned on, this icon also appears in MANUAL operation mode to provide an easy way to display the ASC thresholds.

ASC off button
The button disables ASC operation for the selected sensor mode.
► This button has no effect if ASC is already off or has not been configured.

ASC on button
The button enables ASC operation for the selected sensor mode.
► ASC must be configured and activated for the selected sensor mode. Each sensor mode can be individually configured with different ASC settings.
→ **ASC Settings button**, *page 4-11*

ASC Settings button
This key opens the menus for adjusting ASC operation.

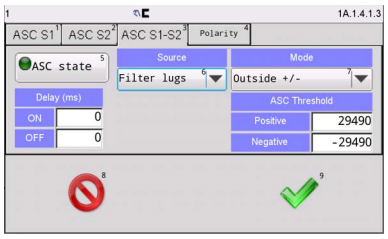


The first three tabs have identical sets of controls for each sensor mode. The last tab contains polarity controls to set the polarity used for each sensor signal during ASC processing.

ASC S1, ASC S2 or ASC S1-S2 tab

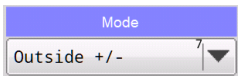
- **ASC State** button
  The ASC State button enables or disabled the availability of ASC use for the selected sensor mode.
  ► The LED displayed on the button indicates the present state.

- Pull-down menu **Source:**
  Sensors S1, S2, S1+S2,S1S2,S1 and S2,S1 or S2(Width monitoring)
  Selects the sensor that is monitored for ASC thresholds.
  ► Typically this is the same sensor used for guiding but in some applications it could be desirable to monitor a different input.



- Pull-down menu **Source**:

  Filter lugs:
  Only in the ASC S1-S2 mode,Filter lugs can be selected(for material with lugs).

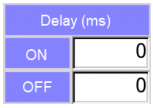


- Pull-down menu **Mode**
  The setting controls how the source signal threshold is processed.
  ► These modes are used to configure ASC operation for specific application requirements. There are 6 modes available:

  - Above +
    Signal is greater than the positive threshold. The negative threshold is not used.
  - Below -
    Signal is less than the negative threshold. The positive threshold is not used.
  - Outside +/-
    Signal is less than the negative threshold or greater than the positive threshold.
  - Below +
    Signal is less than the positive threshold. The negative threshold is not used.
  - Above -
    Signal is greater than the negative threshold. The positive threshold is not used.
  - Inside +/-
    Signal is greater than the negative threshold and less than the positive threshold.

- **ASC Threshold** input field
  These thresholds restrict the sensor field of view.

  - Positive
    Enter the positive threshold of the ASC signal
  - Negative
    Enter the negative threshold of the ASC signal



- **Delay** input field

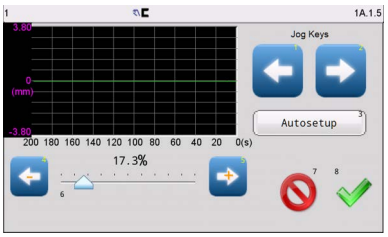
  - On
    ASC will be enabled after a set time when the configured ASC threshold reaches the trigger range.
  - Off
    ASC is deactivated after the set time if the configured ASC threshold is no longer in the triggering range.

Polarity tab

The polarities of the individual sensor signals are adjusted for the ASC job.

1x.1.5. Gain

available in the operating modes:
MANUAL – SERVO-CENTER – AUTOMATIC



This menu is used to display or adjust the guiding sensitivity for the active sensor mode in AUTOMATIC and Manual operation.

Right-Plus / Left-Minus buttons
The gain is reduced or increased. The **slide control** is used to change the gain quickly.
► The set value immediately takes effect in AUTOMATIC operation mode so that the effects in the system can be observed.
In AUTOMATIC operation mode, the diagram area shows the sensor signal.
In SERVO CENTER operation mode, the diagram area shows the output signal of the motor response speed.

Autosetup button
If the SmartDrive Actuator is in MANUAL operation mode, this key appears when the *Gain* menu is opened. It is used to adjust the *Gain* and *Polarity* parameters automatically.

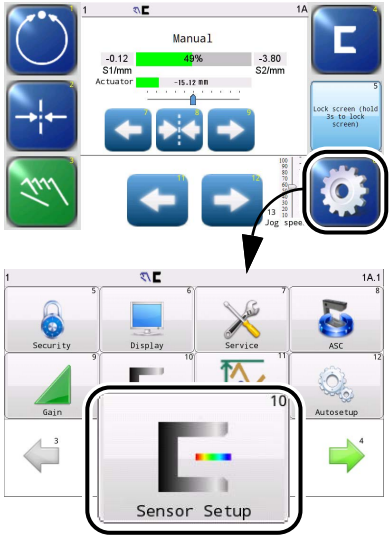
WARNING – Danger of injury caused by crushing on the SmartDrive Actuator
The drive moves during automatic calibration.
⇨ No one is permitted to remain in the hazardous area of the moving parts.

- **Autosetup** button available
  Automatic setting is possible. The system is in Manual mode and the active sensor signal is within the allowable range.
  ► When this job is performed, the SDA moves briefly and the values are adjusted automatically.

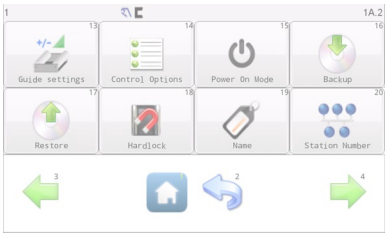
- **Autosetup** button not available
  Automatic setting is not possible. The system is in Manual mode but the sensor signal is not within the allowable range.
  ► The **Left** / **Right** keys can be used to move the SDA until the sensor signal is within the permitted area and the **Autosetup** key can be used.

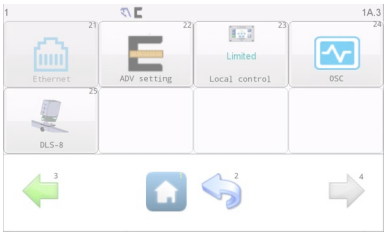
Menu.fm

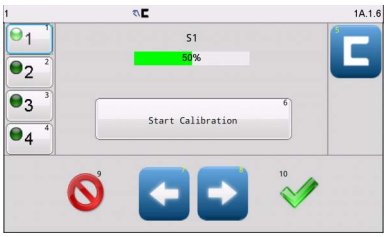
1x.1.6. Sensor Setup



available in the operating mode:
MANUAL







This menu is used to calibrate the settings for the sensors to the properties of the web material.

The sensor settings made in the factory are applicable for opaque web material. For operation with transparent web material, the SmartDrive Actuator (5000,7500&10000N) must be calibrated to maximize the sensitivity of the sensor signal. The SmartDrive Actuator (5000,7500&10000N) is programmed with a sample of the web material for this purpose.

The SmartDrive Actuator stores separate calibration data for the S1 and S2 sensor inputs so the procedure must be done on each sensor input that will be used. The SmartDrive Actuator (5000,7500&10000N) can store/recall up to four sets of calibration settings for S1 and S2 supporting the possibility to store and quickly recall sensor settings for four different web opacities.

IMPORTANT
This change takes effect **immediately** after saving, and in this case, exiting this menu with the **Cancel** button (⊘) will not restore this calibration to its previous setting.

Calibration Set 1 ... 4
These buttons select one of four sets of calibration values. Only one calibration set may be active at any given time with the active set indicated by the green LED on the button face. Set 1 is active by default.

If calibration set 2, 3, or 4 is in use, the button 4 - sensor mode on the user level screen will reflect this by displaying a 2, 3, or 4. When calibration set 1 is active, the sensor button on the User Level screen will not display a number.


Left / Right buttons
The arrow buttons are used to jog the guide in either direction. This can be used to move the web in and out of the sensor during the calibration process.

Sensor buttons
This button is used to switch between sensor inputs S1 and S2.

Start Calibration
This button starts the calibration sequence.

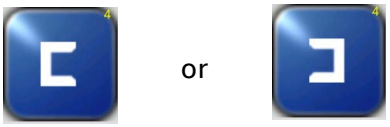
Calibration Procedure

1. Stop motion of the material web and secure it against being restarted
   The sensor calibration process must be carried out when the web is stopped.
   The drive may move during the sensor calibration.

2. Select the MANUAL operation mode

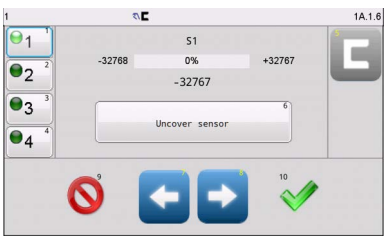
3. Have a sample of the web material ready

4. Select Calibration Set 1, 2, 3 or 4



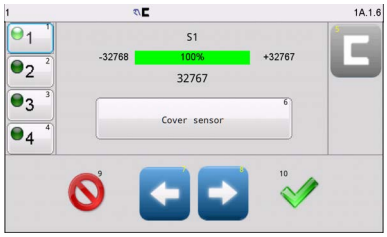
5. Select S1 or S2 sensor input.

6. Start calibration procedure
   ► The bar graph indicator will be rescaled to show the full signal range of -32768 to +32767 on the selected sensor input. The sensor signal level will be displayed under the bar graph.



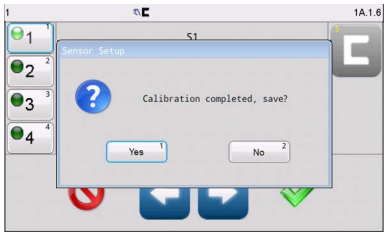
7. Move the web material completely out of the sensor field of view
   ► Use the arrow keys for this if necessary.

8. Press **Uncover sensor** button
   ► The reference value for the uncovered sensor is determined.



9. Move the web material into the sensor field of view until the entire proportional band of the sensor is covered
   ► Use the arrow keys for this if necessary.

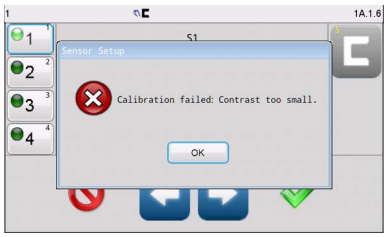
10. Press **Cover sensor** button
    ► The reference value for the covered sensor is determined.



11. Calibration successful:
    The message *Calibration completed, save?* appears.
    Yes key: The calibration sequence can be finished. The calibration values will be saved.
    No key: The calibration sequence can be ended. Calibration data will NOT be saved.

IMPORTANT
After calibration is complete and has been confirmed with Yes, the result is stored in permanent memory. Exiting this menu with the **Cancel** (⊘) button will not restore this calibration to its previous setting.

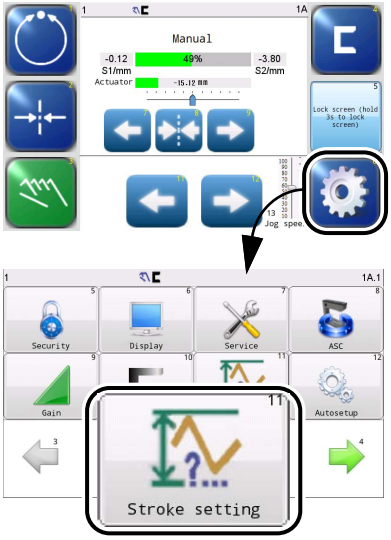
OR



Calibration faulty:
The following message appears: *Calibration failed: Contrast too small.*
► The calibration must be repeated.

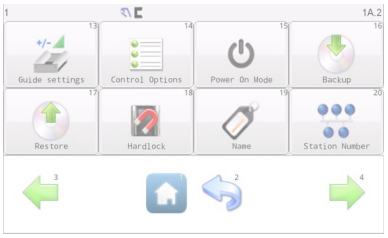
12. Repeat the calibration sequence for additional calibration data records or the other sensor input

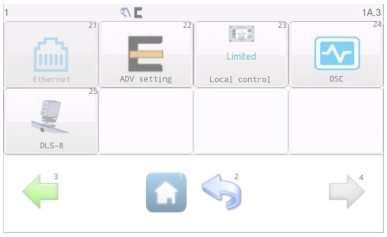
1x.1.7. Stroke setting



available in the operating mode:

MANUAL





This menu is for users quickly configure the SmartDrive stroke.

Stoke setup methods:

Option A:

Use these arrow buttons to jog the SmartDrive Actuator in either direction to set stroke.

Click to get the value of stroke and shown in the blank frame.

The actual stroke range of the SmartDrive Actuator is numerically marked and visually indicated by the green bar.

OR

Option B:

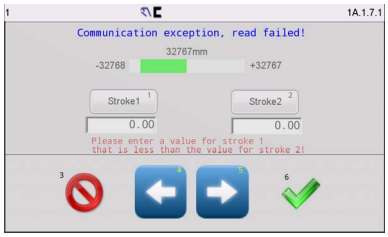
Enter the target stroke values (Stroke 1, Stroke 2) directly into the numeric input box,then click to save.

The actual stroke range of the Smart Drive Actuator is indicated through numerical values and visually represented by a green progress bar.

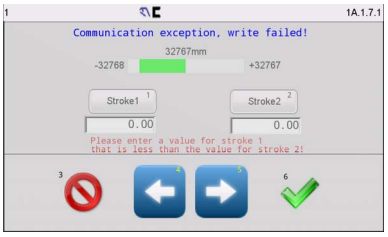
Note:

If you are installing the drive for the first time or reinstalling it, the drive should be aligned so that its full stroke is symmetrical around the mechanical zero point. For instance, if stroke 1 is set to '-1000', then stroke 2 should be set to '1000'.

Menu.fm



If the system fails to retrieve stroke data, a "Read failed" prompt will appear. Please exit and re-enter the interface to retry.

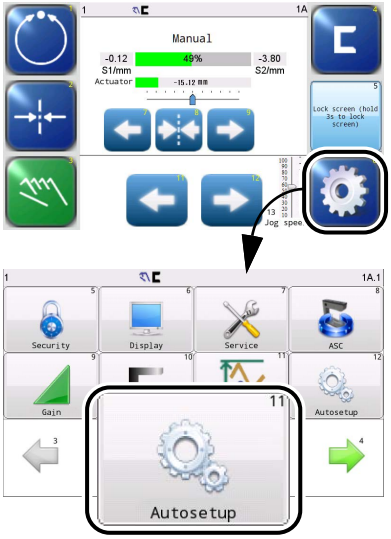


Set the stroke values and click ✔ to write , if "write timeout" occurs,click ✔ again to retry.

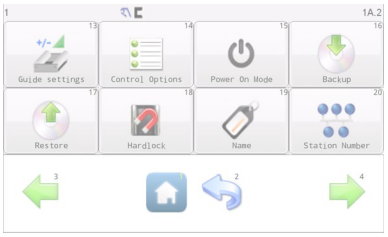
Note:

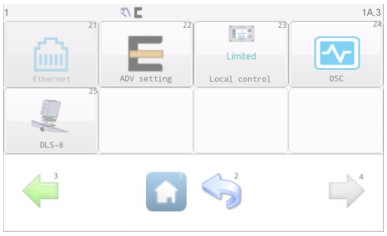
If read/write timeouts persist, it is necessary to troubleshoot the communication link between the OI and the controller.

1x.1.8. Autosetup



available in the operating mode:
MANUAL





This menu is used to calibrate the gain and polarity of the SmartDrive Actuator (5000,7500&10000N) automatically.

In most installations this job adjusts the gain to a suitable value for good guiding performance. In some applications, however, it may be preferable to adjust the gain manually to achieve an optimum result.
→ *1x.1.5. Gain, page 4-14*

Before auto setup can begin, the web must be within the selected sensor field of view. The bar graph indicator shows the acceptable limits for the sensor signal and the **Autosetup** button will remain disabled until the proper conditions are present.

IMPORTANT
The result will be permanently saved after a successful setup has been completed. Pressing the **Cancel** (⊘) button does not restore previous gain and polarity settings.

Note:
The sensors must be calibrated before the automatic calibration.

Autosetup button
Press this button to start the Autosetup.

Left / Right buttons
These keys are used to move the SDA to shift the material web to the center of the sensor field of view for calibration.

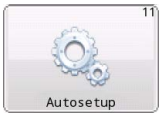
Menu.fm

Calibration Procedure

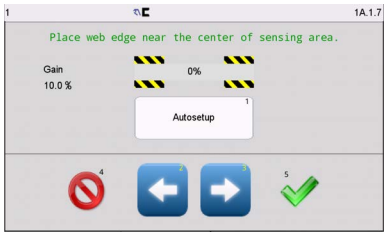
1. Stop motion of the material web and secure it against being restarted
   ► The automatic calibration process must be carried out when the web is stopped.
2. Protect the area around the SmartDrive Actuator against unauthorized entry
   ► The drive moves during automatic calibration.

3. Select the MANUAL operation mode

4. Select the sensor mode (button 4) on the user level
   ► Automatic calibration is performed for the active sensor mode that is selected on the user level.
   → *Button 4 – Select Sensor mode*, page 3-4*



5. Open the *Autosetup* menu

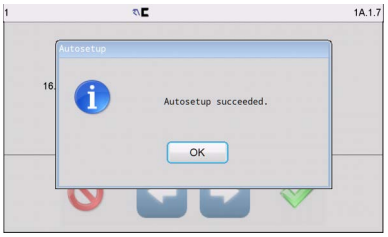


6. Use the arrow keys to position the material web so it is as sensor field of view
   ► As soon as the material web is correctly positioned, the "Autosetup" changes an **Autosetup** key

IMPORTANT
After the **Autosetup** key is pressed, the result is stored in permanent memory. Pressing the **Cancel** (⃠) button does not restore previous gain and polarity settings.

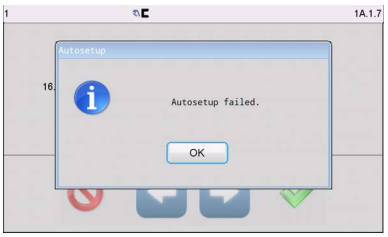
7. Press the **Autosetup** key
   ► Automatic calibration of parameters starts.

WARNING – Danger of injury caused by crushing on the SDA
The drive moves during automatic calibration.
⇨ No one is permitted to remain in the hazardous area of the moving parts.



8. Calibration successful:
   The message *Autosetup succeeded* appears.
   OK button: The calibration sequence is ended. The calibration values will be saved.

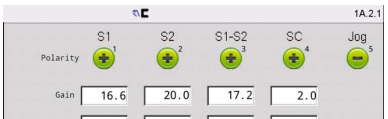
   OR



   Calibration faulty:
   The message *Autosetup failed* appears.
   ► OK button: The calibration must be repeated.

1x.2.1. Guide settings

available in the operating mode:
MANUAL



The menu provides controls to set the gain, polarity and dead band for all modes of operation. The jog polarity is also located on this menu.

Polarity

The keys indicate the current settings of the polarities for the various sensor modes and the motor:
- Sensor input S1
- Sensor input S2
- Center guiding S1-S2
- Motor response speed SC.

The keys can be used to switch the guiding direction of the drive for the AUTOMATIC operation mode.

Note:
The *Autosetup* procedure for each sensor mode configures polarity automatically so changes to the sensor mode polarities are typically not needed.

Jog

The working direction of the **Right** / **Left** keys for moving the SDA can be corrected here if the SDA moves in the wrong direction due to the installation situation.

Gain

The text fields indicate the current value as a % of the gain for the various sensor modes and the motor response speed.

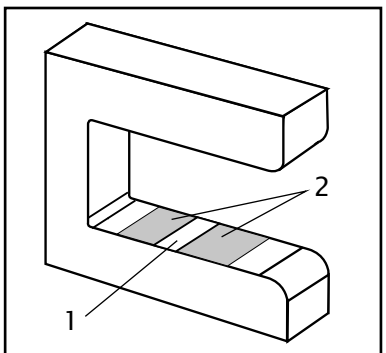
Note
The gain values are set automatically if the *Autosetup* procedure is used.

Tap on the desired text field to select the numeric keypad. The value of the gain can now be entered manually.

Deadband

The text fields indicate the current value of the deadbands for the various sensor modes.

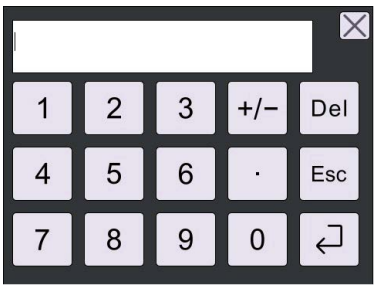
This icon appears in the status line when a deadband has been set up for the sensor mode currently in use.



1 - range without activity
2 - range of full activity

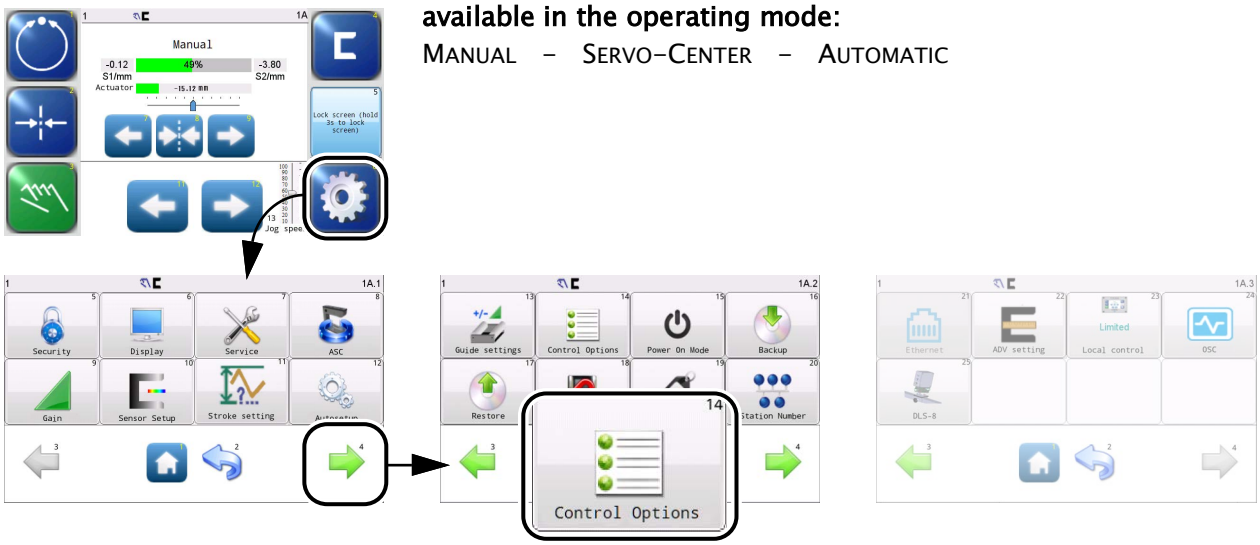
Figure 4.4: Deadband

These settings are used to define a range around the guide point within the sensor field of view in which guiding is not active at all in the AUTOMATIC operation mode.
A setting of zero provides the most accurate guiding. In some applications where the webs have frayed edges, for example, the deadband can be used to stabilize guiding even under those conditions. The values are indicated as a % of the sensor field of view.

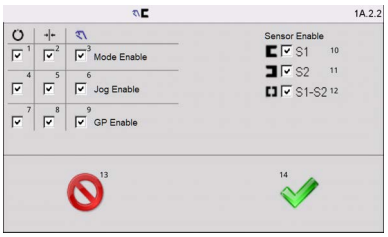


Tap on the desired text field to select the numeric keypad. The value of the gain can now be entered manually.

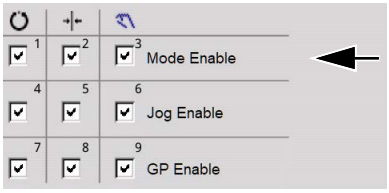
1x.2.2. Control Options



available in the operating mode:
MANUAL – SERVO-CENTER – AUTOMATIC

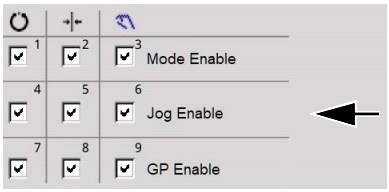


This menu provides elements for the basic setting to operate the SmartDrive Actuator (5000,7500&10000N).



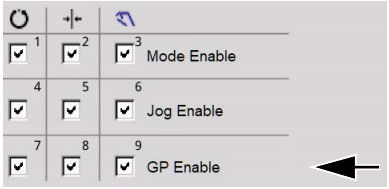
Mode Enable

These checkboxes enable or disable use of AUTOMATIC, SERVO-CENTER, and MANUAL operation modes.
A marked checkbox indicates that the operation mode is available on the user level. At least one mode must remain enabled at all times.



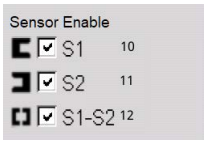
Jog Enable

These checkboxes activate or deactivate the availability of the **Right / Left** keys in the AUTOMATIC, SERVO-CENTER and MANUAL operation modes.
A marked checkbox indicates that the actuator can be moved for this operation mode. If the parameter is deactivated, these tests then appear in gray on the user level.



GP enable

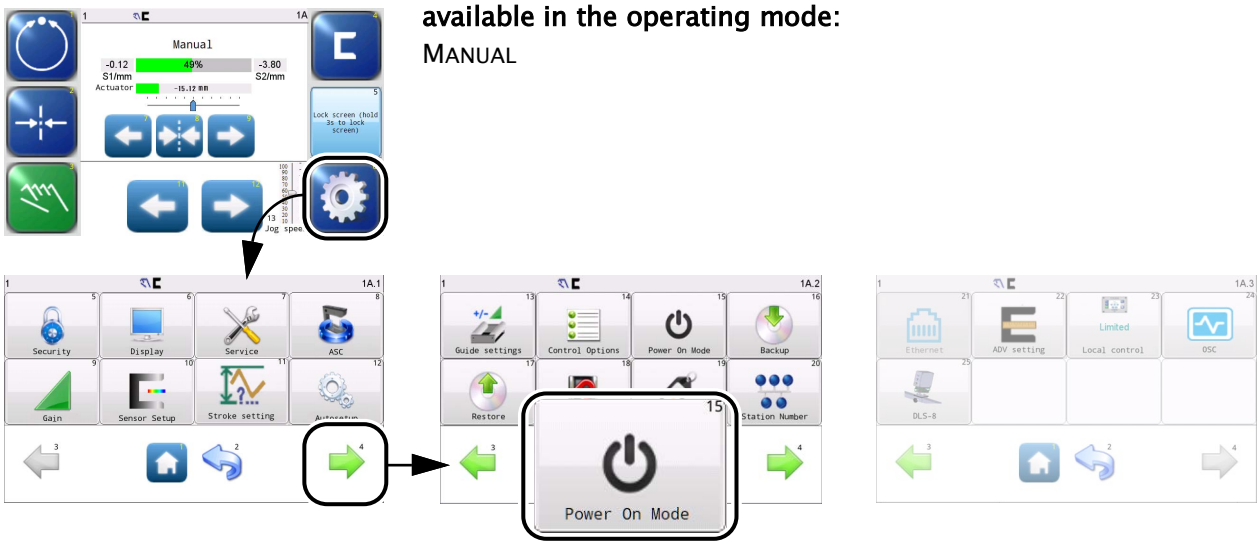
These checkboxes enable or disable the guide point controls on the User Level in AUTOMATIC, SERVO-CENTER, and MANUAL operation modes. This offset always refers to the setting of the guide point that is used in the Automatic operation mode.
A marked checkbox indicates that the guide point offset can be moved for this operation mode. If the parameter is deactivated, these tests then appear in gray on the user level.
This control does not affect guide point control from the digital inputs.



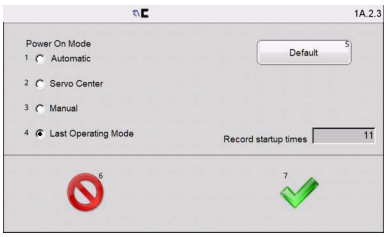
Sensor Enable

These checkboxes activate or deactivate the sensor modes that can be selected with the **Sensor Modes** key on the user level. The menu will not permit saving a configuration with all sensor modes disabled.

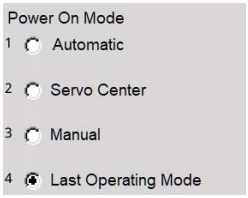
1x.2.3. Power-On Mode



available in the operating mode:
MANUAL



This menu controls the Power On mode for the SmartDrive Actuator (5000,7500&10000N).

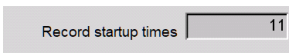


Option fields of **Power-On mode**

By default, the operation mode that was active most recently before the power supply was interrupted is restored.
→ select: Most recently used mode
However, a fixed operation mode can also be assigned for the Power-On mode.

Default button

The default button selects the factory setting which is “Last mode used”.

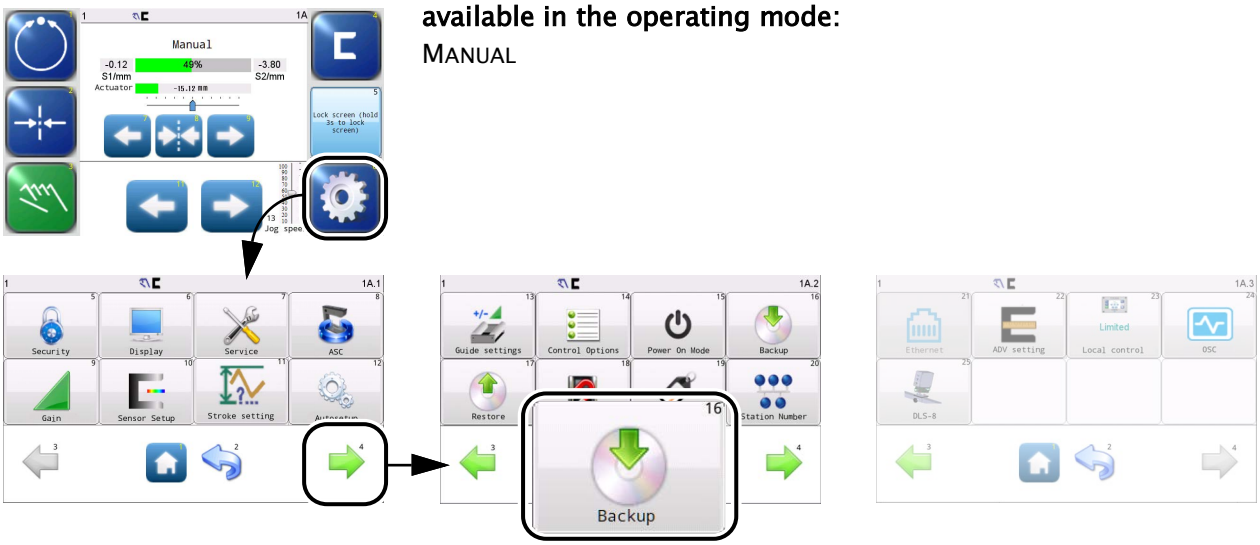


Record startup times display

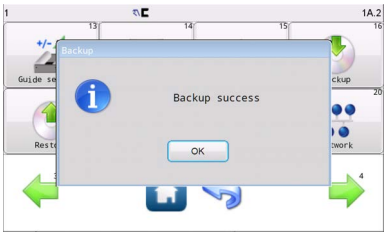
Indicates the number of power-on processes the system has recorded.

WARNING – Danger of injury caused by crushing on the actuator
Selecting the AUTOMATIC or SERVO-CENTER operation mode for the Power-On mode can lead to movements of the actuator during the power-on process.
⇨ During the power-on process, no one is permitted to remain in the hazardous area of the moving parts of the SmartDrive Actuator (5000,7500&10000N).

1x.2.4. Backup



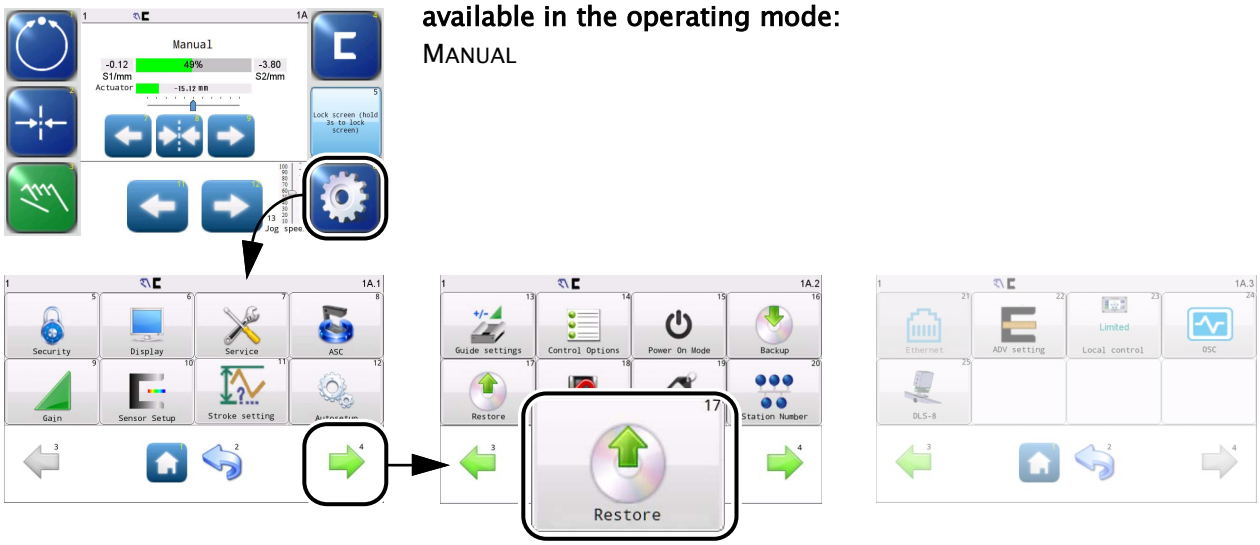
available in the operating mode:
MANUAL



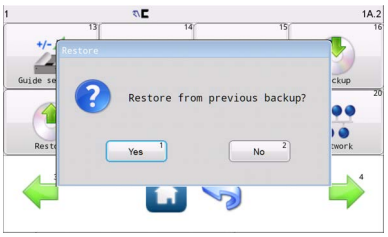
This menu is used to save all current settings of the SmartDrive Actuator (5000,7500&10000N) in a backup copy on the module.

After the backup is completed, the menu must be exited with the OK key.

1x.2.5. Restore

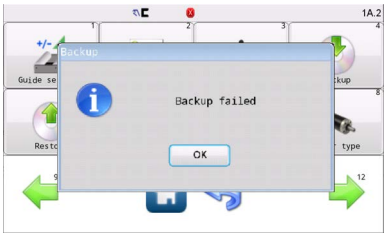


available in the operating mode:
MANUAL



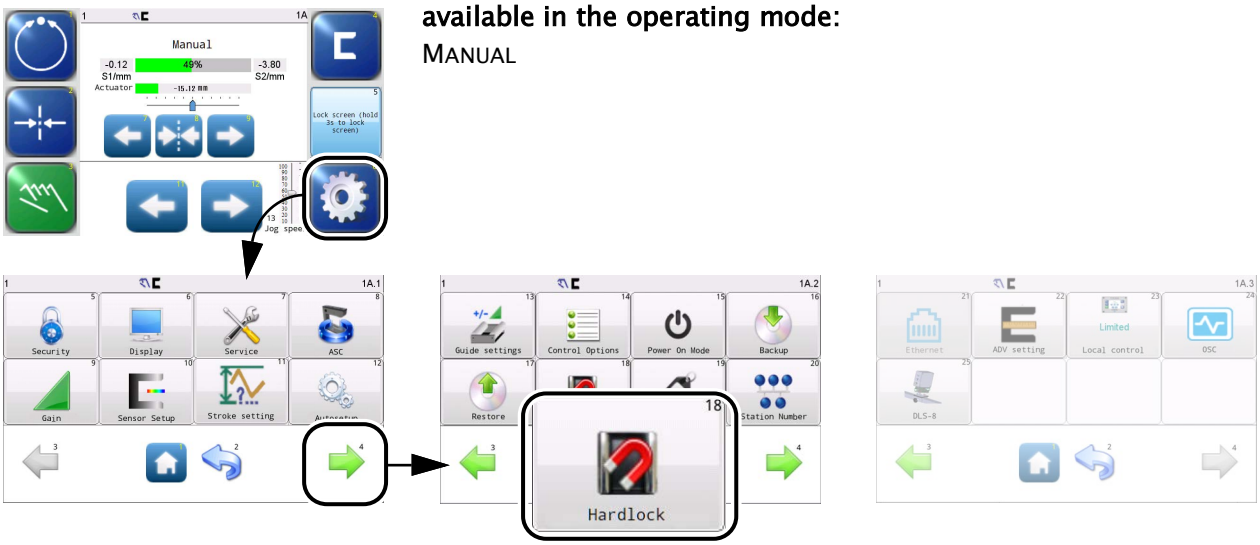
This menu is used to set all the settings of the SmartDrive Actuator (5000,7500&10000N) to the values of a backup copy.

If no backup image is present or it is corrupted, the following message will appear. Restore is not possible in this case.

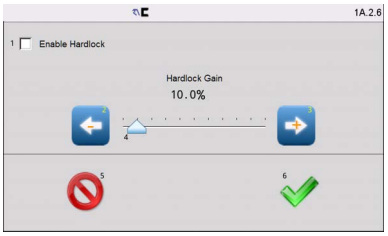


Note
Restore reloads all user-Configurable settings such as gains, polarities,etc. In order to prevent unintended password modification, restore does **not** replace active passwords from the backup from the backup image.

1x.2.6. Hardlock

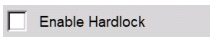


available in the operating mode:
MANUAL



This menu is used to set up parameters to ensure that the position of the drive is actively held when switching into the MANUAL operation mode.

The drive is normally de-energized n the MANUAL operation mode. Under certain conditions, the de-energized drive may be moved by an external force in the client's system (such as gravity or web tension transverse to the web direction of motion). To prevent this, the drive can be actively held in its position in the MANUAL operation mode.

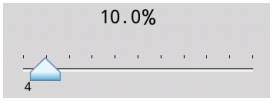


Enable Hardlock checkbox

Activate or deactivate the Hardlock function

Hardlock Gain arrow keys

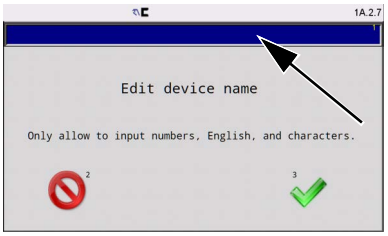
Reduce or increase the gain of the Hardlock control circuit



► The **slide control** is used to change the gain quickly.

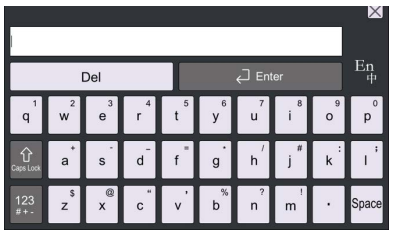
1x.2.7. Name

available in the operating mode:
MANUAL



This menu is used to edit the name of device currently connected to the OI .

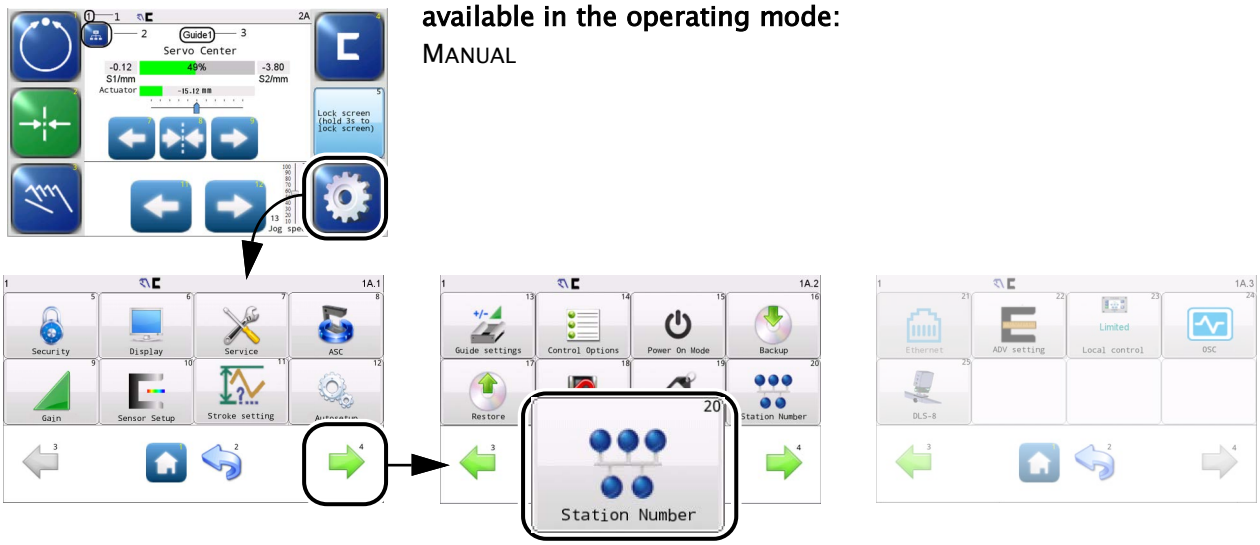
The specified name can be 16 characters or less and is displayed on the Operator Level screen. This can be useful in a networked environment to identify the connected drive.



- Tap on the blue text field (→ arrow in the illustration)
  ► A keyboard appears that you can use to enter the device name.

Note:
Only numbers, basic letters of the alphabet and characters are allowed.

1x.2.8. Station Number

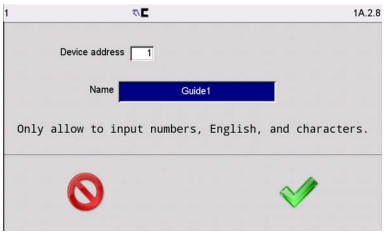


available in the operating mode:
MANUAL

This menu allows you to view and manage all devices connected to the OI.

An OI can display and control up to 30 devices simultaneously(as shown on the left). The status bar displays the network address (station number) of the currently connected OI and the device being configured.

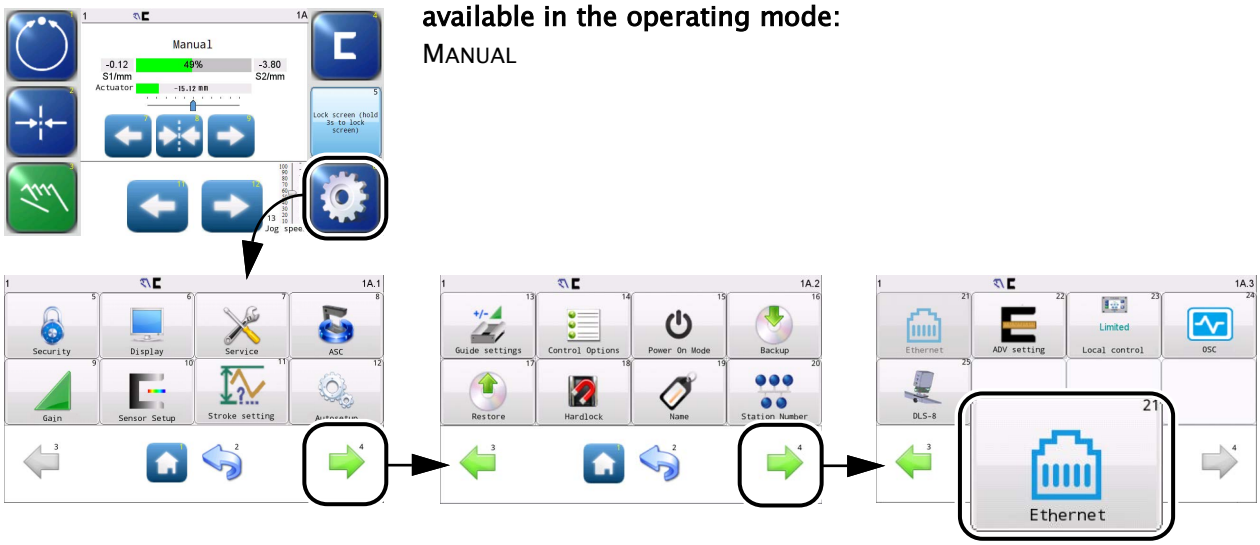
1- indicates that the device with network address 1 is currently connected to the OI.



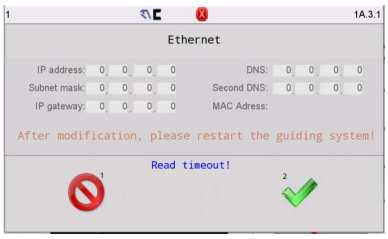
2-Click a device icon (the number “1-30” below the icon represents the device’s network address/station number) to edit its “Device Address” and “Name.” If the “Device Address” is changed, the icon will automatically move to the new address position.

Device names can be up to 16 characters and are shown on the Operator Level screen.

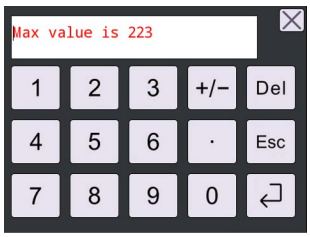
1x.3.1. Ethernet



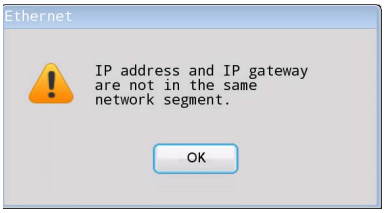
available in the operating mode:
MANUAL



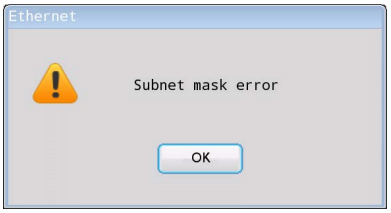
This menu is used to view and configure the Ethernet parameters if the SmartDrive Actuator (5000,7500&10000N) is networked.



This prompt will appear if the value entered for the IP address and the first segment number of the IP gateway exceeds 223.



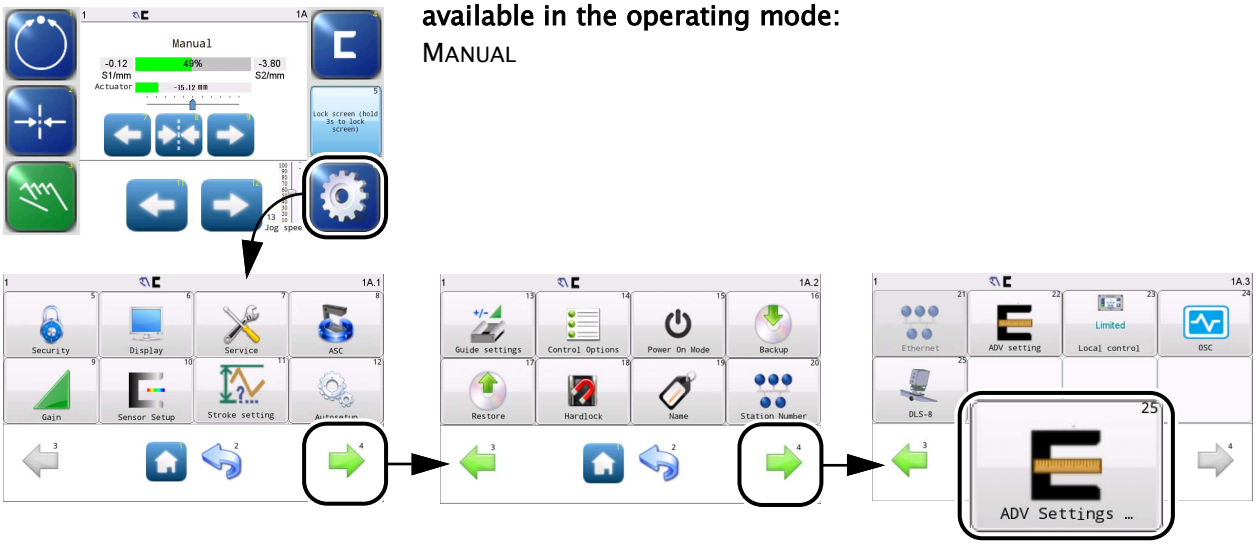
The IP address and IP gateway must be on the same network segment to ensure proper communication, or the prompt will appear.



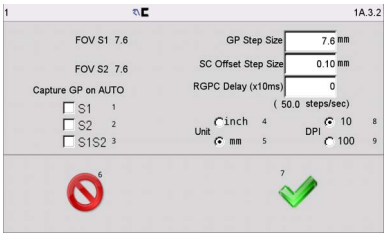
Subnet mask input error prompt.

Note:
After changes have been made in the menu, the SmartDrive Actuator (5000,7500&10000N) must be restarted after a prompt appears asking to do this.

1x.3.2. ADV Settings...



available in the operating mode:
MANUAL



This menu is used to display and set up properties of connected edge sensors.

FOV (Field Of View) S1 or S2

The field of view of the connected sensors is displayed. The field of view can be displayed in inches or mm

GP Step Size

If the guide point is shifted manually, this change is made in defined step widths. The step width of the guide point offset is displayed here and can be changed.

SC Offset Step Size

Move actuator with defined step widths. The step width of the SC offset is displayed here and can be changed.

RGPC Delay (x10ms)

This shows the response time of the system after a manual change to the guide point, with the response speed in steps / second in parentheses underneath. The response time can be changed.
- Minimum value: 1
- Maximum value: 255

Capture GP on AUTO

This options can be selected to turn automatic recording of the guide point on or off in different sensor modes.
When switching from MANUAL to AUTOMATIC, the current web position is applied as the new guide point.

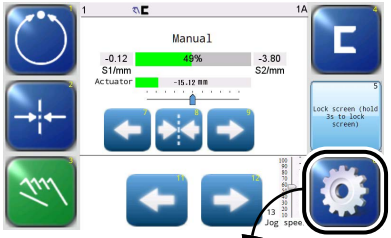
Unit

Set up the desired length unit for the system, mm or inches.

DPI

Indicates the precision of the GP Step Size settings.

1x.3.3. Local Control



available in the operating mode:
MANUAL - SERVO-CENTER - AUTOMATIC

The menu can be used to block control signals which are a hindrance during initial operation or an error search. Control signals can be:

- external fieldbus systems (connector X3)

If there are no external control signals present in the SmartDrive Actuator (5000,7500&10000N), the settings in this menu have no meaning.

Option field Limited

*1A

Local operation on the operator interface is limited.
► This state is represented by an asterisk before the menu ID.
Keys on the user level that cannot be operated in this state are identified by a lock icon. A message also appears with the corresponding information.

Option field **To start up**

(*)1A

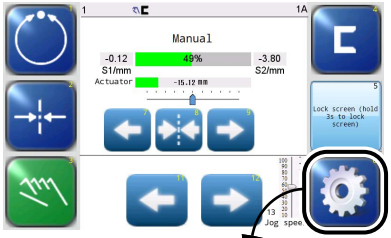
Local operation on the operator interface is enabled. External control signals via fieldbus or the parallel interface are blocked.
► This state is represented by an asterisk in parentheses before the menu ID.
► All operator control options on the operator interface are available.

Menu.fm

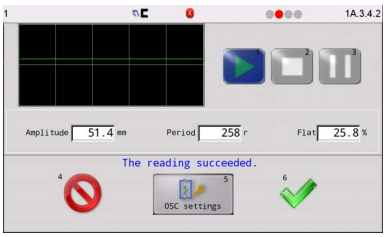
Current control display

This display describes the current operation of the system by the local operator interface or relevant external control signals.

1x.3.4. OSC



available in the operating mode:
MANUAL - SERVO-CENTER - AUTOMATIC



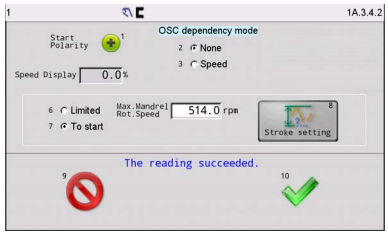
Traversing is identified by three adjustable parameters: Amplitude,Rotations/Period,and Flat.

The oscillator 'OSC' is turned on and traversing operation is running when the drive is in "Automatic" operation mode.
No traversing occurs in "Manual" and "Servo-center" operation modes. It starts as soon as the mode switches to "Automatic" operation mode.
In "Manual" and "Servo-center" operation modes the 5 key flashes on control units with a touchscreen.

The oscillator 'OSC' is turned on and the traversing operation is stopped at the current position.

The oscillator 'OSC' is turned on and traversing operation is stopped at the current position.

Click to start commissioning.



Start Polarity
The direction in which the traversing movement begins when the system is turned on can be changed.

Speed Display

Coil mode -The currently assigned value for Mandrel Rotation Speed is displayed. This display can be used to check whether the coil mandrel speed is correct.

Line mode -The currently assigned value for line speed is displayed. This display can be used to check whether the web is running at the desired speed.

Max. Mandrel Rot.Speed

The maximum rotation speed that will occur on the coil mandrel.

OSC dependency mode

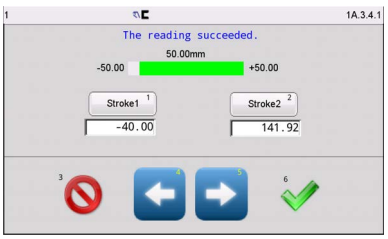
Set up the traversing movement depending on the line /coil mandrel speed.

- None, the traversing movement does not depend on the line/ coil mandrel speed.
- Speed, depending on the line/coil mandrel speed.

Line/Coil

OSC mode,line for web guiding, coil for rewind.

Click to set the stroke range.

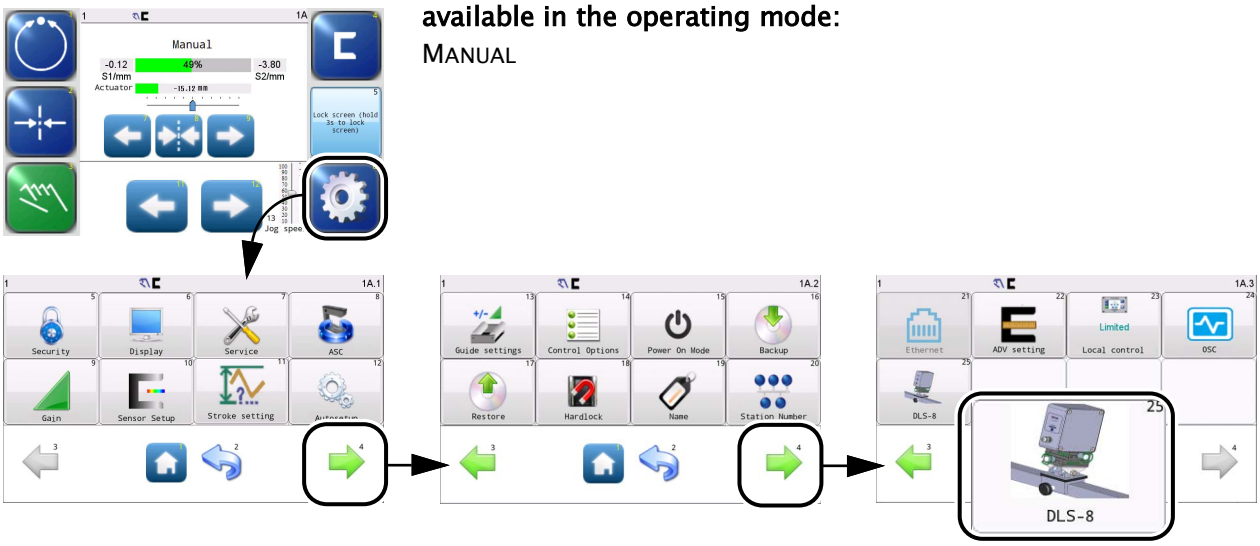


Use these arrow buttons to jog the SmartDrive Actuator in either direction to set stroke.

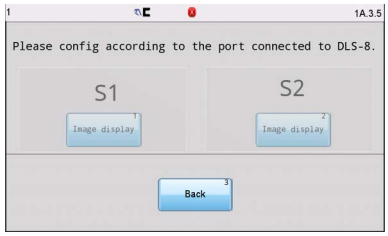
Click to get the value of stroke and shown in the blank frame. The actual stroke range of the SmartDrive Actuator is numerically marked and visually indicated by the green bar.

Note:
If you are installing the drive for the first time or reinstalling it, the drive should be aligned so that its full stroke is symmetrical around the mechanical zero point. For instance, if stroke 1 is set to '-1000', then stroke 2 should be set to '1000'.

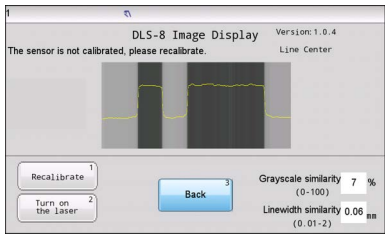
1x.3.5. DLS-8



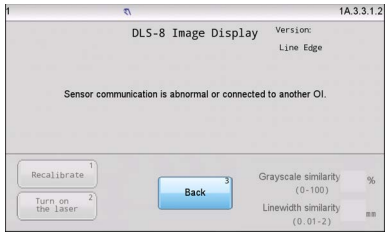
available in the operating mode:
MANUAL



This menu is used to set up and operate sensor DLS-8.
► This menu can only be used if one or two DLS-8 sensors are connected to the SmartDrive Actuator (5000,7500&10000N).



Choose S1 or S2 to configure and calibrate.
This is the main screen for DLS-8 calibration, displaying the last calibration mode and the firmware version.



When the DLS-8 communication is disrupted or connected to another Operator Interface (OI), the sensor interface will indicate a communication issue or connection conflict.

Note:
More information about the DLS-8 sensor can be found in separate operating instructions in the system documentation.

Menu.fm

5 TROUBLESHOOTING

Operator interface

Faulty behavior	Possible cause	Remedy
Incorrect actions are performed or none at all	The touch screen is calibrated incorrectly	Test the touch screen Recalibrate if necessary → *1x.1.2.1.4 Calibrate Touch Screen, page 4-5*

Symbols in the display of the operator interface

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

→ *Appendix A - Symbols, page 7-1*

LED Codes

Figure 5.1:LED on SmartDrive Actuator

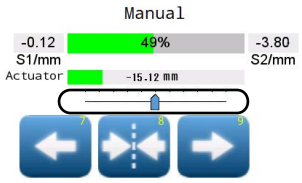
LED	Status	Indicates
E1	Off	No ethernet connection
	Green	Ethernet communication
E2	Off	No ethernet connection
	Orange	Ethernet link on
Controller	Off	No power
	Green,Blinking	Logic power supply is normal, and chip temperature is within the normal range
	Red,Blinking	Control board fault
Motor	Off	No power
	Green	Motor voltage normal, encoder functioning properly, motor temperature normal.
	Red,Blinking	Motor fault
Serial	Off	Controller Program Exception
	Green	Communication between the control board and the driver board is normal
	Red,Blinking	Communication between the control board and the driver board has failed

Faulty behaviour and setting errors

Often the cause of incorrect or undesirable guiding behaviour is an incorrect setting of the SDA. These errors can easily be eliminated by changing the appropriate settings of the SDA.

Possible causes for faulty behaviour

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

Possible causes for faulty behavior	Remedy	Reference
(*)1A An asterisk "(*)" appears in the status line before the menu identification. Local Control has been taken over.	Limit Local Control. Local Control must be limited to ensure that the system can run as a whole.	*1x.3.3. Local Control, page 4-37*
Sensors	Check the signals of the connected sensors (range 0 - 100%).	*1x.1.6. Sensor Setup, page 4-16* *Main tab, page 4-7*
	It may be necessary to recalibrate the sensors.	*1x.1.6. Sensor Setup, page 4-16*
	See also the Operating Instructions for the relevant sensors	
Guide point shifted  The display marks the spot to which the guide point was shifted.	Is the offset of the guidepoint set the way you want it? Correct the guidepoint if necessary.	*Button 7, 8, 9 - Move the guide point*, page 3-5*
Possible causes for faulty behavior	**Remedy**	**Reference**
Deadband set up	Do you want the deadband? Correct deadband parameters if necessary.	*Deadband, page 4-25*

Error while setting parameters

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

Faulty behavior	Reason	Remedy	Reference
The actuator does not move in AUTOMATIC mode.	The gain is set too low.	Increase the gain	*1x.1.5. Gain, page 4-14*
	Sensor error	Check sensor selection and sensor settings	*1x.1.6. Sensor Setup, page 4-16*
	Deadband set incorrectly	Check parameters	*Deadband, page 4-25*
	ASC set incorrectly	Check parameters	*1x.1.4.1 ASC, page 4-10*
	The actuator is mechanically locked.	Free the actuator and clean the area.	
The actuator vibrates in the AUTOMATIC operation mode.	The gain is set too high.	Reduce the gain	*1x.1.5. Gain, page 4-14*
	Cable connections are loose.	Check all cable connections to make certain they are securely fastened.	
	The sensor calibration is not correct.	Make sensor setting.	*1x.1.6. Sensor Setup, page 4-16*
The actuator moves in the wrong direction in AUTOMATIC mode.	The polarity is set incorrectly.	Reverse the polarity	*Polarity, page 4-24*
	Wrong sensor mode selected.	Select the MANUAL operation mode and check whether the correct sensor mode is selected.	*User level, page 3-4*
	The sensor calibration is not correct.	Make sensor setting.	*1x.1.6. Sensor Setup, page 4-16*
The actuator can not be centered in the SERVO-CENTER operation mode.	Stroke setting is set incorrectly	Set the stroke range to include the guide point position or change the guide point.	*1x.3.4. OSC, page 4-39*

The actuator can not move in Manual mode	The external pulling force on the actuator is too strong	Check the external mechanical connections of the actuator.	

6 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.

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.

Contact details

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Oklahoma City, OK 73114
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Fax: 1-405-755-8425
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7 APPENDIX A - SYMBOLS

The following symbols can be displayed in the status line.

Operating mode

One of these symbols appears to indicate the current operating mode of the SmartDrive Actuator:
Automatic - Servo Center - Manual

Sensor mode

One of these icons will appear to indicate the currently selected sensor mode:

- for edge sensors
  EDGE LEFT - EDGE RIGHT - CENTER GUIDING
  The left, right or both sensors can be selected.

- for Line sensors
  LINE EDGE - Line center (MATERIAL OR PRINTING EDGE)
  The left, right or both sensors can be selected.

Indicates that the left sensor and the right sensor are in use at the same time, and the current status of both is line edge.

Indicates that the current status of the left sensor is LINE EDGE.

Indicates that the current status of the right sensor is LINE CENTER.

Menu Timeout

The menu screens in the SDA close automatically of touch screen inactivity.
→ configurable: page *4-5*

- The clock icons will appear during stages of the timeout process.
  If a timeout occurs, the respective menu will abort any changes applied and return to the User Level screen.

- Some service-related screens are immune from the timeout option and are indicated by the presence of the orange clock icon.

Symbol.fm

Authorization levels

When security has been configured, one of these icons will appear to indicate the authorization level of the current user.

→ *Security (Access management), page 3-10*

→ configurable with menu *1x.1.1.1 Security, page 4-2*

- Level 1 has the least access while level 3 has the most.
- Security is disabled in the factory default configuration so these icons will not be displayed.

Read only menu

When *Security* is activated, an operator can make the settings in some menus but not in others.

Guide point changed

A new System Guide point has been applied. This icon will appear on the status bar until the System Guide point remains unchanged for approximately 20 seconds.

External Lock

An input command "External Lock" has been accepted. The Automatic guide movement is blocked In this state.

ASC ON

ASC (Automatic Signal Control) is enabled for the current sensor mode.

→ *1x.1.4.1 ASC, page 4-10*

ASC active

ASC (Automatic Signal Control) is enabled and the ASC state has been triggered. The guiding is blocked.

→ *1x.1.4.1 ASC, page 4-10*

Target tracking

These icons appear when DLS-8 line sensors are used.

- This green icon indicates the tracking target of the DLS-8 sensor is in the field of view.

The red icon indicates that the reference is outside of the field of view of the line sensor.

or

If two line sensors are being used at the same time, one of the line sensors is not connected or the reference is outside of the field of view of a line sensor.

OSC

This icon appears when OSC is running.

Dead band

This icon indicates that a deadband has been set up for the sensor mode currently in use.

Motor blocked

This icon indicates the motor is blocked.

Communication error

The communication is not working between the operator screen and the motor controller.

Voltage error

The input voltage, motor rail voltage, or internal power is outside acceptable range.

Motor Hall State Fault

A problem is detected with the motor hall state transitions or the encoder signals from the motor.

STORKE LIMIT SETTING

This icon appears when the trip limit is set incorrectly.

Drive Overload

The icon indicates the drive chip overcurrent alarm.
Please go to the page for reset:
Setup->Service->Measure->error:clear

TEMPERATURE ALARM

This icon appears when the motor, drive,
or controller temperature is too high

DRIVE DISCONNECTED

This icon appears when the controller is disconnected from the drive.

DRIVE STROKE LIMET

This icon appears when the drive travel is outside the limits

MAC ADDRESS ERROR:

MAC This icon appears when the MAC address is set incorrectly.

Gear ratio error

This icon will appear when the gear ratio is set incorrectly.

Battery Low

This icon will appear when the battery is too low.

Symbol.fm