

# OS10.0 Safety operator software



- Operator software for certified safety devices
- For PCs and notebooks with Windows 8.1 and Windows 10 operating systems
- Additional editor tool for parameter file management
- Extensive features for test purposes and frequency calibration

## Suitable for the following models:

- IFS-10

## General Contents

Preliminary information	9
1 – OS10.0 overview	10
2 – Safety components for IFS-10 units	13
3 – Serial Configuration	62
4 – Editor Tool for Parameter Files	70
5 – Tools menu	82
6 – Help menu	83
7 – Appendix	87

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The logo for Lika Electronic s.r.l. consists of the word "lika" in a bold, lowercase, sans-serif font. The letter "i" has a dot above it. The logo is positioned in the bottom right corner of the page.

# General contents

User's guide.....	1
General contents.....	3
Table of figures.....	6
Typographic and iconographic conventions.....	8
Preliminary information.....	9
<b>1 – OS10.0 overview.....</b>	<b>10</b>
1.1 Standard mode.....	10
1.2 Safety mode.....	10
1.3 Structure and differences of the Safety mode.....	10
1.3.1 OS10.0 components.....	11
1.3.2 Help menu.....	12
<b>2 – Safety components for IFS-10 units.....</b>	<b>13</b>
2.1 Info field.....	15
2.2 IFS-10: Parameter set checksums.....	16
2.2.1 Display of the parameter set checksums.....	16
2.2.2 Read out of the current checksums.....	17
2.2.3 Printing and saving of the parameter set checksums via File Editor.....	17
2.3 Parameters.....	18
2.3.1 Parameter list.....	18
2.3.2 Editing the Parameter Values.....	19
2.3.3 Reading Single Parameters.....	20
2.3.4 Functions for several parameters simultaneously.....	20
Read All.....	20
Transmit Change.....	21
Store EEPROM.....	21
2.3.5 Save Parameters as File.....	22
2.4 Inputs.....	22
2.5 Status component.....	23
2.6 Monitor.....	24
2.6.1 IFS-10 Errors.....	25
2.6.2 IFS-10 Frequency.....	26
2.6.2.1 Frequency calibration via OS10.0.....	26
2.6.3 IFS-10 Monitor.....	28
2.6.3.1 Overview.....	28
2.6.3.2 General handling.....	29
2.6.3.3 Display mode: Monitor Offline.....	30
Page List.....	30
Monitor Panel.....	30
Selection of the specific variable data set.....	31
Menus and controls.....	31
2.6.3.4 Monitor mode: Monitor Online.....	33
Page List.....	33
Monitor Panel.....	33
Monitoring: cyclic reading of parameters.....	34
Menus and controls.....	34
2.6.3.5 Editor Mode: Editing Mode.....	36

Page List.....	36
Monitor panel.....	36
Menus and controls.....	37
2.6.3.6 Data Logging.....	38
Restriction for logging: time interval.....	38
Description of the logging.....	39
Selection of the variables.....	39
Execution of the logging.....	43
Saving and evaluation.....	44
Special settings.....	47
Switching to the configuration mode.....	48
Field of configuration (right).....	48
Menu and controls.....	49
2.6.4 IFS-10 Error Logging.....	50
Monitor Components.....	51
What data will be saved?.....	51
Result of the Error Logging.....	51
Workflow of Error Logging.....	52
2.6.5 IFS-10 OPU Display.....	53
2.6.6 IFS-10 Min-Max Monitor.....	55
Selecting the parameter set.....	55
Parameter channel.....	56
2.6.7 IFS-10 Output States Monitor.....	57
Setting the parameter set.....	57
Monitor Setup.....	58
2.7 Exception: Lost Connection .....	60
2.8 Status Information.....	61
<b>3 - Serial Configuration.....</b>	<b>62</b>
3.1 Overview.....	63
3.2 General operating elements.....	64
3.3 Configuration selection.....	66
3.4 Operating Elements.....	67
3.4.1 Hardware Auto Connect.....	67
3.5 Status Information.....	68
3.5.1 Current COM Port Status.....	68
3.5.1.1 COM Port Status.....	68
3.5.1.2 Hardware Auto Connect.....	69
3.5.1.3 Current COM Port Settings.....	69
3.5.1.4 Current Unit Number.....	69
<b>4 - Editor Tool for Parameter Files.....</b>	<b>70</b>
4.1 Opening the Editor.....	71
4.2 Operation of the Editor.....	72
Operating elements of the editor.....	73
4.2.1 Loading a new parameter data set from a file.....	74
4.2.2 Edit parameter data sets.....	75
Editing the parameter data sets.....	75
Selecting the displayed parameter values or menus.....	75
Saving a parameter data set.....	75
Printing parameter data sets.....	77
4.3 Data Exchange between File Editor and OS10.0 Window.....	78
4.3.1 File Editor → OS10.0 Window.....	78

4.3.2 OS10.0 Window → File Editor.....	80
<b>5 - Tools menu.....</b>	<b>82</b>
<b>6 - Help menu.....</b>	<b>83</b>
6.1 Updating the OS10.0.....	84
6.1.1 Automatic update check.....	84
6.1.2 Updating the OS10.0 to a new version.....	86
<b>7 - Appendix.....</b>	<b>87</b>
7.1 Literature.....	87
7.2 Special cases.....	87
7.3 System requirements.....	87

# Table of figures

Figure 1 - OS10.0 Standard mode overview.....	10
Figure 2 - OS10.0 Safety mode overview.....	11
Figure 3 - OS10.0 Safety Mode overview / Relations between the different components.....	14
Figure 4 - "State: Programming Mode" Info Field.....	15
Figure 5 - Info-Field / Checksums for IFS-10 in Normal Operation state.....	16
Figure 6 - Info-Field / Checksums for IFS-10 in Programming mode state.....	17
Figure 7 - Re-Initialization menu.....	17
Figure 8 - Parameter list / Programming Mode.....	18
Figure 9 - Parameter list "disabled".....	18
Figure 10 - Input Component.....	22
Figure 11 - Status Component.....	23
Figure 12 - Monitor / IFS-10 Errors.....	25
Figure 13 - Monitor / IFS-10 Frequency.....	26
Figure 14 - Monitor / IFS-10 Frequency Calibration.....	26
Figure 15 - Monitor / IFS-10 Monitor - Overview.....	28
Figure 16 - Monitor / IFS-10 Monitor / Pop-up Menu and Control Buttons.....	29
Figure 17 - Page List / IFS-10 Monitor / Monitor Offline.....	30
Figure 18 - Monitor / IFS-10 Monitor / Selection of a Page.....	31
Figure 19 - Monitor - Monitor Offline / Pop-up menu and Control buttons (right).....	31
Figure 20 - Monitor / IFS-10 Monitor / Monitor Online.....	33
Figure 21 - Monitor / Monitor Online - Example.....	34
Figure 22 - Monitor Online - Pop-up menu (left) and Control buttons (right).....	34
Figure 23 - Page List / IFS-10 Monitor / Editing Mode.....	36
Figure 24 - Editor Mode / Pop-up menu (left) and Control buttons (right).....	37
Figure 25 - Logging - Selection of parameters: initial situation.....	39
Figure 26 - Logging - Selection of parameters: choice of a parameter.....	40
Figure 27 - Logging - Selection of variables: choice of variable - before activation.....	41
Figure 28 - Logging - Selection of variables: choice of variable - after activation.....	42
Figure 29 - Logging - Execution.....	43
Figure 30 - Logging - Saving of the Logs.....	44
Figure 31 - Logging - Location of the Log files.....	44
Figure 32 - Logging - Configuration mode: List of variables (left) and field of configuration (right).....	48
Figure 33 - Logging - Configuration mode: changing/input of a logging interval.....	48
Figure 34 - Logging - configuration mode: Pop-up menu (left) and Control buttons (right).....	49
Figure 35 - Monitor / IFS-10 Error Logging.....	50
Figure 36 - Relationships between OS10.0 <-> IFS-10 <-> IFS-10-PM.....	53
Figure 37 - OPU Parameter Menu (left) and Monitor: IFS-10 OPU (right).....	53
Figure 38 - Monitor / Min Max / Overview.....	55
Figure 39 - Monitor / Min Max / Parameter channel.....	56
Figure 40 - Monitor / Min Max / Measurement.....	56
Figure 41 - Monitor / Output States / Blocked Monitor: Incorrect setting of the serial page parameter.....	57

Figure 42 - Monitor / Output States / Unblocked Monitor: Correct setting of the "serial page" parameter.....	58
Figure 43 - Monitor / Output States / Monitor Setup.....	58
Figure 44 - Monitor / Output States / Active Monitor.....	59
Figure 45 - Monitor / Output States / Disabled Monitor.....	59
Figure 46 - CONNECTION LOST... warning.....	60
Figure 47 - OS10.0 Status Information.....	61
Figure 48 - Serial Port Configuration Menu.....	62
Figure 49 - Serial Configuration of IFS-10.....	62
Figure 50 - Serial Configuration for Standard Units.....	62
Figure 51 - Overview / Serial Configuration Tool.....	63
Figure 52 - Operation Menu.....	63
Figure 53 - The COM Port is open.....	64
Figure 54 - The COM Port is closed.....	64
Figure 55 - Status Bar / COM Port Information.....	68
Figure 56 - Current COM Port Status.....	68
Figure 57 - File Editor.....	70
Figure 58 - Editor Components with a loaded Parameter File.....	72
Figure 59 - File Editor: Menu.....	73
Figure 60 - File Editor: Pop-up Menu.....	73
Figure 61 - File editor: Example- parameter data set without "Write Protected" .....	74
Figure 62 - File editor: Example- parameter data set with "Write Protected".....	74
Figure 63 - File Editor: Change window for optional parameters (without "Write Protected")....	76
Figure 64 - File Editor: Change window for optional parameters (with "Write Protected").....	76
Figure 65 - Example "IFS-10 unit is not in the Programming Mode".....	78
Figure 66 - Parameters transmission via FILE DOWNLOAD.....	79
Figure 67 - Data transfer for data records with "Write Protected".....	79
Figure 68 - CONNECTION LOST ... warning message.....	80
Figure 69 - File Editor: Changing window (without "Write Protected").....	81
Figure 70 - File Editor: Changing window (with "Write Protected").....	81
Figure 71 - Help menu, overview.....	83
Figure 72 - Current Documentation Directory.....	83
Figure 73 - Update OS10.0 - No Update is available.....	84
Figure 74 - Update OS10.0 - Update available.....	85
Figure 75 - Update OS10.0 - Download Update.....	85

# Typographic and iconographic conventions

In this guide, to make it easier to understand and read the text the following typographic and iconographic conventions are used:

- parameters and objects both of the device and the interface are coloured in **GREEN**;
- alarms are coloured in **RED**;
- states are coloured in **FUCSIA**.

When scrolling through the text some icons can be found on the side of the page: they are expressly designed to highlight the parts of the text which are of great interest and significance for the user. Sometimes they are used to warn against dangers or potential sources of danger arising from the use of the device. You are advised to follow strictly the instructions given in this guide in order to guarantee the safety of the user and ensure the performance of the device. In this guide the following symbols are used:

	This icon, followed by the word <b>WARNING</b> , is meant to highlight the parts of the text where information of great significance for the user can be found: user must pay the greatest attention to them! Instructions must be followed strictly in order to guarantee the safety of the user and a correct use of the device. Failure to heed a warning or comply with instructions could lead to personal injury and/or damage to the unit or other equipment.
	This icon, followed by the word <b>NOTE</b> , is meant to highlight the parts of the text where important notes needful for a correct and reliable use of the device can be found. User must pay attention to them! Failure to comply with instructions could cause the equipment to be set wrongly: hence a faulty and improper working of the device could be the consequence.
	This icon is meant to highlight the parts of the text where suggestions useful for making it easier to set the device and optimize performance and reliability can be found. Sometimes this symbol is followed by the word <b>EXAMPLE</b> when instructions for setting parameters are accompanied by examples to clarify the explanation.

# Preliminary information

This guide is designed to describe the installation and use of the OS10.0 Safety operator software for Lika interfaces.

The OS10.0 Safety operator software described here is suitable for connection, parametrization, operation, and simulation of Lika units as well as of certified safety devices of the IFS-10 series. All compatible device types will be immediately detected after connection to a PC which is equipped with OS10.0 software and the appropriate working environment as well as all Windows components.

This software manual describes all operating elements of Lika certified safety devices of the IFS-10 series. The description of the operating elements for Lika standard devices can be found in the "MAN OS10.0 Standard" manual.



## NOTE

Figures, screenshots and some descriptions in this software manual refer to the IFS-10 unit, but they also apply to other Lika devices that could be used with the previous versions OS6.0 and OS3.2.

The installation and uninstallation of this program and its components are described in the "MAN OS10.0 Installer" manual.



## WARNING

OS10.0 can be installed only on Microsoft® Windows 8.1 or Windows 10 operating systems.

A directory is generated for each user using the OS10.0 software.

The OS10.0 user directory is always created under the path "*C:\Users\<NAME>\Documents\Os100*" where <NAME> is the login name of the user.

# 1 – OS10.0 overview

## 1.1 Standard mode

The software always starts in standard mode. The following Figure shows the program that is currently in the **SEARCHING UNIT...** state:

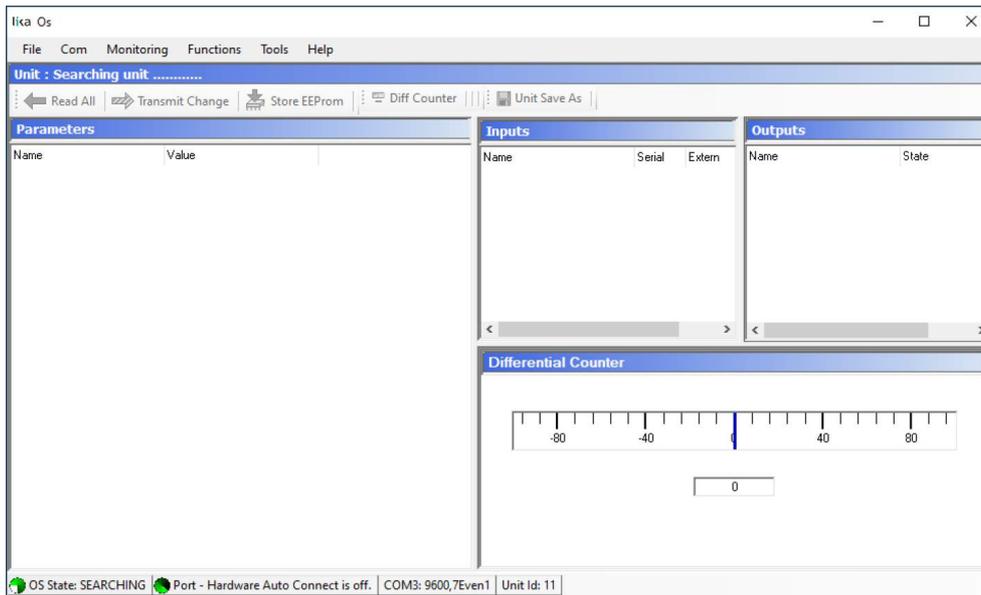


Figure 1 – OS10.0 Standard mode overview

## 1.2 Safety mode

The OS10.0 software includes a "Safety mode" as an additional component. This is used to connect only the **certified safety devices of the IFS-10 series**.

**Auto-switch to safety mode:** when a safety device is connected, the program will automatically detect the device type and switch over to the special working environment of the safety component. An active safety mode (see Figure 2) can be recognized by the yellow coloured windows of the working environment (blue colour in the standard mode, see Figure 1).

## 1.3 Structure and differences of the Safety mode

The screen of the OS10.0 "Safety mode" is similar to the OS10.0 standard version, but it includes five display elements instead of four. If no safety unit is connected, the standard OS10.0 opens first. Only when you connect a safety unit, the full safety version (with all five display elements) is accessible.

A navigation menu as well as a toolbar with buttons allow an easy and intuitive operation of the elements. Parts and features that are not available are greyed out automatically.

Overview of all the components:

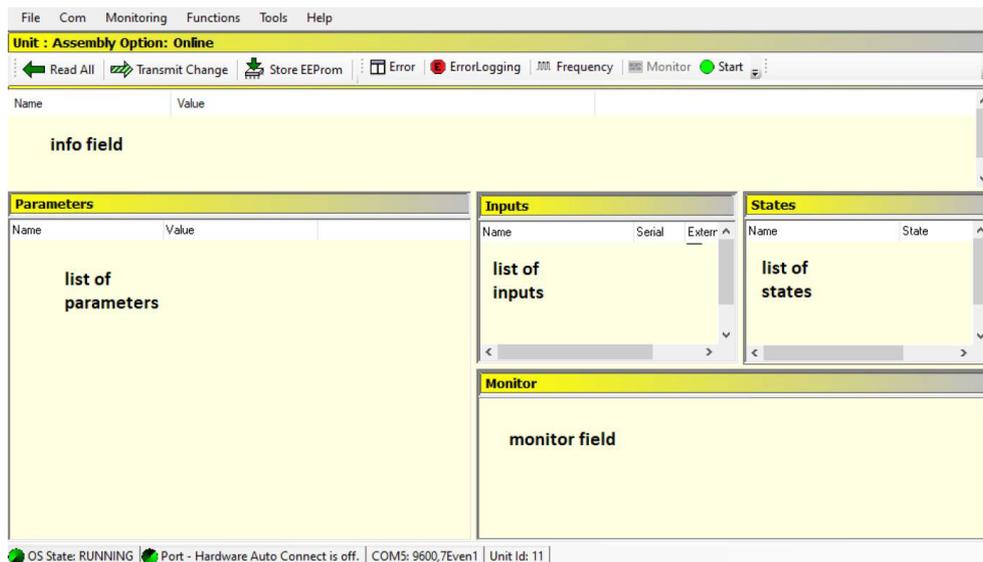


Figure 2 – OS10.0 Safety mode overview

The single elements are described in the following pages.

### 1.3.1 OS10.0 components

- **Info** (see the "2.1 Info field" section on page 15)  
It shows important state information about the connected safety device.
- **Parameter** (see the "2.3 Parameters" section on page 18)  
This component contains the parameter list, which is used to display and change the parameters of the connected unit.
- **Inputs** (see the "2.4 Inputs" section on page 22)  
It is an information display to show the states of the HTL control and command inputs.
- **Status** (see the "2.5 Status component" section on page 23)  
It summarizes important information about the various safety tests and the settings of the DIL switch.
- **Monitor** (see the "2.6 Monitor" section on page 24)  
This special feature of the Safety mode is an extended functionality of the monitor component. Seven different display windows are available:
  1. Error (see on page 25);
  2. Frequency (see on page 26);
  3. Monitor (see on page 28);
  4. Error Logging (see on page 50);
  5. OPU (see on page 53);
  6. Min/Max (see on page 55);
  7. Output states (see on page 57).

### 1.3.2 Help menu

- **Show help** (see the "6 - Help menu" section on page 83)  
This menu will automatically open the current document directory.
- **Web page** (see the "6 - Help menu" section on page 83)  
This menu will automatically open Lika's web page.
- **Update OS10.0** (see the "6.1 Updating the OS10.0" section on page 84)  
This menu allows to start the updating of the OS10.0 software tool.

**NOTE**

Please note that fonts and colours may vary depending on the specific Windows settings.

## 2 – Safety components for IFS-10 units

The different components of the Safety mode are interdependent. The chart in the following page is intended to illustrate the respective relations.

- The **Status** component reads permanently the test results and the DIL switch settings from the connected IFS-10 unit **(1)**, evaluates these values and returns the result in the info field **(2)**.
- At the same time the result of the DIL switch evaluation is used to enable (or disable) the parameter entry in the parameter list and the Error Logging monitor component **(3)** or to release the data transfer in the editor **(4)**. Data saving of the parameters via editor is always possible **(5)**.
- Depending on the selected monitor, several parameters from the parameter list are required. These parameters are loaded automatically from the list and transferred to the monitor component **(6)**.

Each element is described in the Picture of the following page.

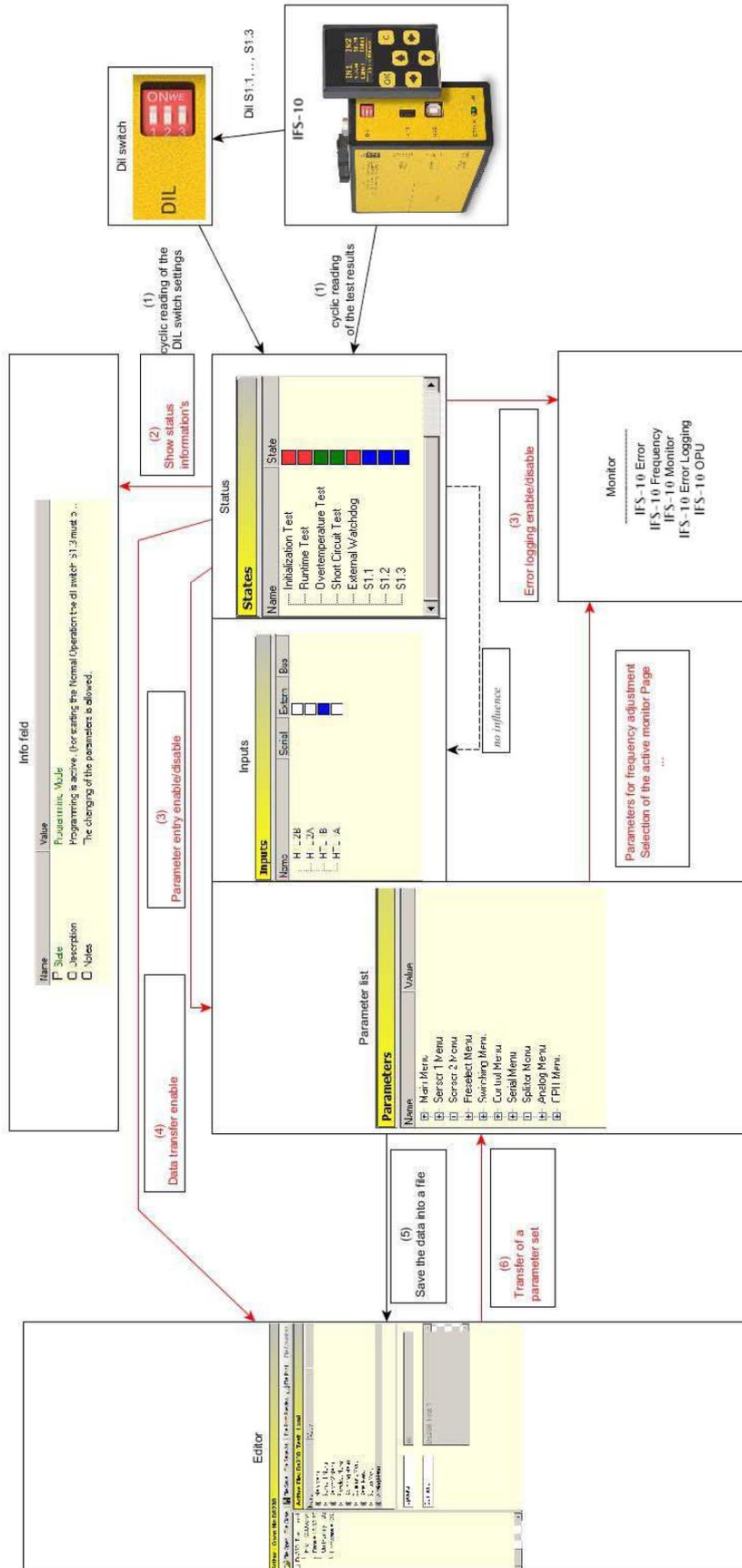


Figure 3 - OS10.0 Safety Mode overview / Relations between the different components

### 2.1 Info field

The info field shows the most important status information about the operating conditions of the connected safety unit.

Name	Value
P State	Programming Mode
O Description	Programming is active. (For starting the Normal Operation the dil switch S1.3 must b...
O Notes	The changing of the parameters is allowed.

Figure 4 - "State: Programming Mode" Info Field

The exact relationship between the various states and their detailed explanation are extensively described in the specific "User's guide" of the safety unit.

Depending on the settings of the DIL switch, the safety unit can enter one of the following operating states: **Factory Settings**, **Programming Mode**, and **Normal Operation**.

The operating states are described by the info field entries:

State	Name	Value
Factory Settings	F State	<b>Factory Settings</b> Factory Setting mode is active.
	O Description	(To start in <b>Normal Operation</b> the S1.1 DIL switch must be set to ON)
	O Notes	The changing of the parameters is NOT allowed.
Programming Mode	P State	<b>Programming Mode</b> Programming mode is active.
	O Description	(To start in <b>Normal Operation</b> the S1.3 DIL switch must be set to ON.)
	O Notes	The changing of the parameters is allowed.
Normal Operation	R State	<b>Normal Operation</b>
	O Description	The unit is still working ...
	O Notes	The changing of the parameters is NOT allowed.

Table 1 - Info Field / Description of the Operating States

When in **Normal Operation** the OS10.0 software is able to detect and display errors automatically. The following table shows a list of the possible errors.

Error category	Name	Value
Self-test error	<b>E</b> State	<b>ERROR</b>
	<b>O</b> Description	During the self-test an ERROR has occurred.
	<b>O</b> Notes	The changing of the parameters is NOT allowed.
Operation error	<b>E</b> State	<b>ERROR</b>
	<b>O</b> Description	During an operation an ERROR has occurred.
	<b>O</b> Notes	The changing of the parameters is NOT allowed.
Self-test and operation error	<b>E</b> State	<b>ERROR</b>
	<b>O</b> Description	Both self-test and operations are FAULTY.
	<b>O</b> Notes	The changing of the parameters is NOT allowed.

Table 2 – Error State Description Info Field

The exact error management is fully described in the specific "User's guide" of the unit.

## 2.2 IFS-10: Parameter set checksums

### 2.2.1 Display of the parameter set checksums

For this device series, two checksums are displayed in the info field (**Check Sum Low** and **Check Sum High**).

The checksums can only be read out and displayed correctly in the **Normal Operation** state (see the Figure below). The read out always takes place only during the initialization of the connection between the IFS-10 and the OS10.0.

Name	Value
<b>R</b> State	Normal Operation
<b>I</b> Description	The unit is still working ...
<b>I</b> Notes	The changing of the parameters is NOT allowed.
<b>I</b> CheckSum Low	73037503
<b>I</b> CheckSum High	1A5812CE

Figure 5 – Info-Field / Checksums for IFS-10 in Normal Operation state

For all other operating states, no checksums are displayed (see the Figure below).

Name	Value
P State	Programming Mode
I Description	Programming is active. (For starting the Normal Operation the dil switch S1.3 must b...
I Notes	The changing of the parameters is allowed.
I CheckSum Low	-----
I CheckSum High	-----

Figure 6 - Info-Field / Checksums for IFS-10 in Programming mode state

### 2.2.2 Read out of the current checksums

The read out takes place in two steps:

1. Set up the device to the Normal Operation operating state via DIL switches (see the "User's manual" of IFS-10).
2. Use the Re-Initialization menu to start the initialization of the connection between the IFS-10 and the OS10.0 (see the Figure below).

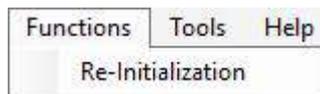


Figure 7 - Re-Initialization menu

Checksums are read out and displayed automatically.

### 2.2.3 Printing and saving of the parameter set checksums via File Editor

The functions Data transfer, printing, saving to a file and reading from a file are managed as done with other parameters.

Unlike other parameters, the checksums are always displayed in the Editor field File information. A data transfer of the checksums from the file editor to the OS10.0 window is not possible.

For information on using the file editor please refer to the "4 - Editor Tool for Parameter Files" on page 70.

## 2.3 Parameters

### 2.3.1 Parameter list

The parameter list allows to display or change the device parameters.



#### WARNING

The device parameters can be changed or enabled only if the unit is in the **Programming mode**.

If the unit is in any other state, no change in the parameter sets (read from or write to the unit) is allowed or enabled. So the respective component is greyed out automatically:

Programming Mode	Factory Settings, Normal Operation																				
<div style="background-color: #ffffcc; padding: 2px;"><b>Parameters</b></div> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 80%;">Name</th> <th style="width: 20%;">Value</th> </tr> </thead> <tbody> <tr><td>⊕ Main Menu</td><td></td></tr> <tr><td>⊕ Sensor 1 Menu</td><td></td></tr> <tr><td>⊕ Sensor 2 Menu</td><td></td></tr> <tr><td>⊕ Preselect Menu</td><td></td></tr> <tr><td>⊕ Switching Menu</td><td></td></tr> <tr><td>⊕ Command Menu</td><td></td></tr> <tr><td>⊕ Serial Menu</td><td></td></tr> <tr><td>⊕ Splitter Menu</td><td></td></tr> <tr><td>⊕ Analog Menu</td><td></td></tr> </tbody> </table>	Name	Value	⊕ Main Menu		⊕ Sensor 1 Menu		⊕ Sensor 2 Menu		⊕ Preselect Menu		⊕ Switching Menu		⊕ Command Menu		⊕ Serial Menu		⊕ Splitter Menu		⊕ Analog Menu		
Name	Value																				
⊕ Main Menu																					
⊕ Sensor 1 Menu																					
⊕ Sensor 2 Menu																					
⊕ Preselect Menu																					
⊕ Switching Menu																					
⊕ Command Menu																					
⊕ Serial Menu																					
⊕ Splitter Menu																					
⊕ Analog Menu																					
<p><b>Figure 8 - Parameter list / Programming Mode</b></p>	<p><b>Figure 9 - Parameter list "disabled"</b></p>																				

The operating states can be set by using the S1 DIL switch, see the specific "User's guide" of the unit.

The effects of enabling/disabling the parameter list are described in the "4 - Editor Tool for Parameter Files" and "2.6 Monitor" sections on pages 70 and 24 respectively.

### 2.3.2 Editing the Parameter Values

The following example about the **Multiplier1** parameter shows how to edit, read or transmit single parameter values.

<p>Double-click the parameter value ...</p>	
<p>... an editing window opens:</p>	
<p>Now the new value can be set (e. g. 15).</p>	
<p>By pressing the <b>ENTER</b> button, the changed value is confirmed and coloured in <b>red</b>, <u>but it is not transmitted</u> to the unit.</p>	

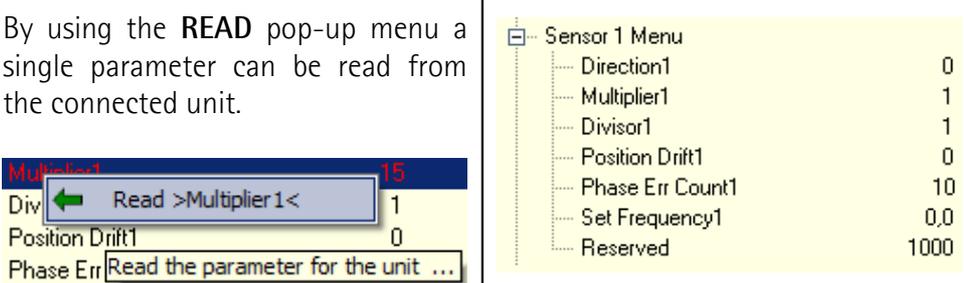


**NOTE**

Please note the exceptions for the parameters in the appendix (see the "7 – Appendix" section on page 87).

### 2.3.3 Reading Single Parameters

By using the **READ** pop-up menu a single parameter can be read from the connected unit.



After reading, the parameter is automatically coloured in black.

### 2.3.4 Functions for several parameters simultaneously

If you need to read or transmit several parameters simultaneously, the **Read All**, **Transmit Change**, and **Store EEPROM** features can be used. All these functions are activated by the respective buttons in the toolbar.

Before executing these functions, a security check must be confirmed, because all these features will affect significantly the IFS-10 and the OS10.0. If the security check is not approved, the corresponding feature cannot be executed.

#### Read All

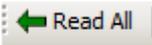
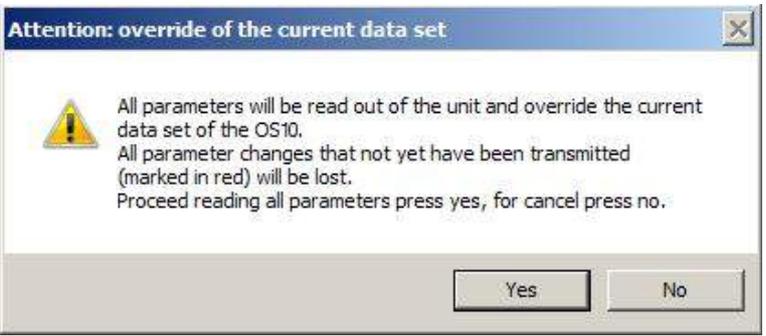
Button	Description
	<p>All parameters<sup>1</sup> of the connected unit will be read and all current parameters will be <u>overwritten</u> in the parameter list. All parameters will be marked in black.</p> <p>Security check:</p> 

Table 3 – Read All

1 "All parameters" refer to the parameter data sets which are "free switched" in the Editor (see the "4 - Editor Tool for Parameter Files" section on page 70).

Transmit Change

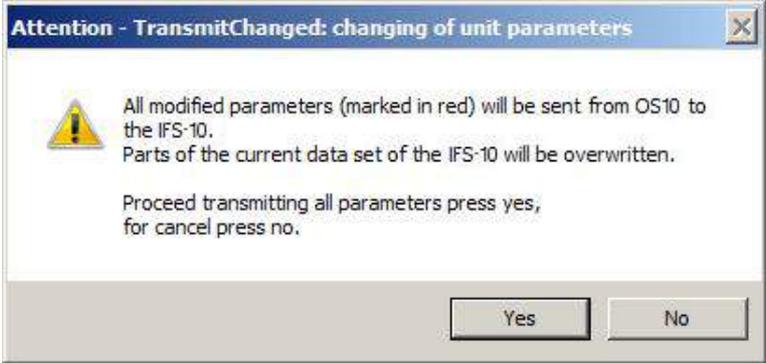
Button	Description
 Transmit Change	<p>Only the changed parameters (they are coloured in <b>red</b>) are transmitted to the unit.</p> <p>Security check:</p> 

Table 4 - Transmit Change

Store EEPROM

Button	Description
 Store EEPROM	<p>When you press this button, you save all parameters to the EEPROM. This type of storage has no influence on the parameter colours in the parameter list.</p> <p>Security check:</p>

Table 5 - Save Parameters to the EEPROM

### 2.3.5 Save Parameters as File

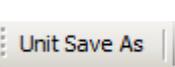
Button	Description
	By pressing the <b>UNIT SAVE AS</b> button, the file editor is displayed on the left side of the screen and the current parameter set can be saved to a file.

Table 6 - Save Parameters to a file

### 2.4 Inputs

The **Inputs** field is used as an information display. It shows the current switching state of the HTL control inputs at the terminal X10 of the IFS-10 unit.

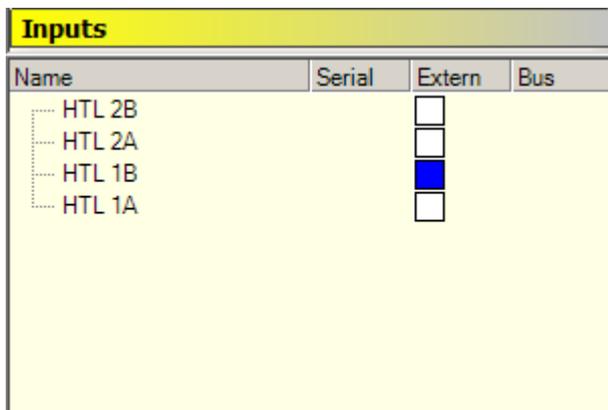


Figure 10 - Input Component

Extern	Description
	The input is HIGH
	The input is LOW

Table 7 - Input Component / Input States

For a complete description of the inputs please refer to the specific "User's guide" of the unit.

## 2.5 Status component

The status component is divided into two columns: the **Name** column and the **State** column. Each entry is arranged in rows.

The first five entries are test results. They provide information about the status of the connected unit.

The three entries (S1.1, S1.2, S1.3) in the screenshot below show the respective switching states of the DIL switch:

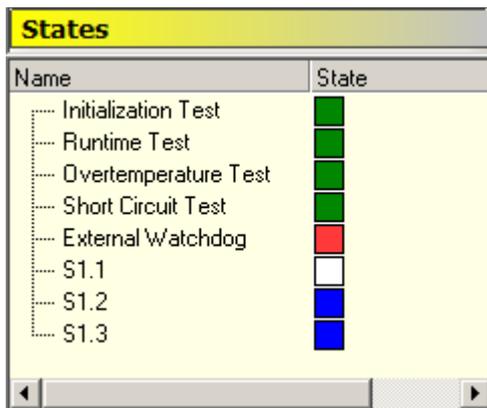


Figure 11 - Status Component

The table below shows the possible states of the respective entries:

Entry	State	Description
Test result		The test was NOT successful.
		The test has been completed successfully.
DIL switch		The state of the DIL switch slider is ON.
		The state of the DIL switch slider is OFF.

Table 8 - Status Component / Entry States

For a complete description of the states and the entries above please refer to the specific "User's guide" of the unit.

## 2.6 Monitor

The Safety mode and its variable monitor windows offer extensive possibilities for monitoring the IFS-10 safety unit.

List of the available display elements:

Display element	Selection by Menu	Button
IFS-10 Errors	 IFS-10: Errors	 IFS-10: Error
IFS-10 Frequency	 IFS-10: Frequency	 IFS-10: Frequency
IFS-10 Monitor	 IFS-10: Monitor	 IFS-10: Monitor
IFS-10 Error Logging	 IFS-10: ErrorLogging Monitor	 IFS-10: Error Logging
IFS-10 OPU Viewer	 IFS-10: OPU Viewer	 IFS-10: OPU Viewer
IFS-10 Min/Max	 IFS-10: Min/Max	 IFS-10: Min/Max
IFS-10 Output States	 IFS-10: Output States	 IFS-10: Output States

**Table 9 – Monitor / Display Element for Monitor Selection**

Only one of these monitor windows can be active at a time. The selection of the respective display element can be done via the **MONITORING** navigation menu or by using the corresponding button of the toolbar.



**WARNING**

The **Error Logging** monitor of the IFS-10 unit can be used in the **Programming mode** only.

### 2.6.1 IFS-10 Errors

This monitor shows a detailed list of the several error indicators:

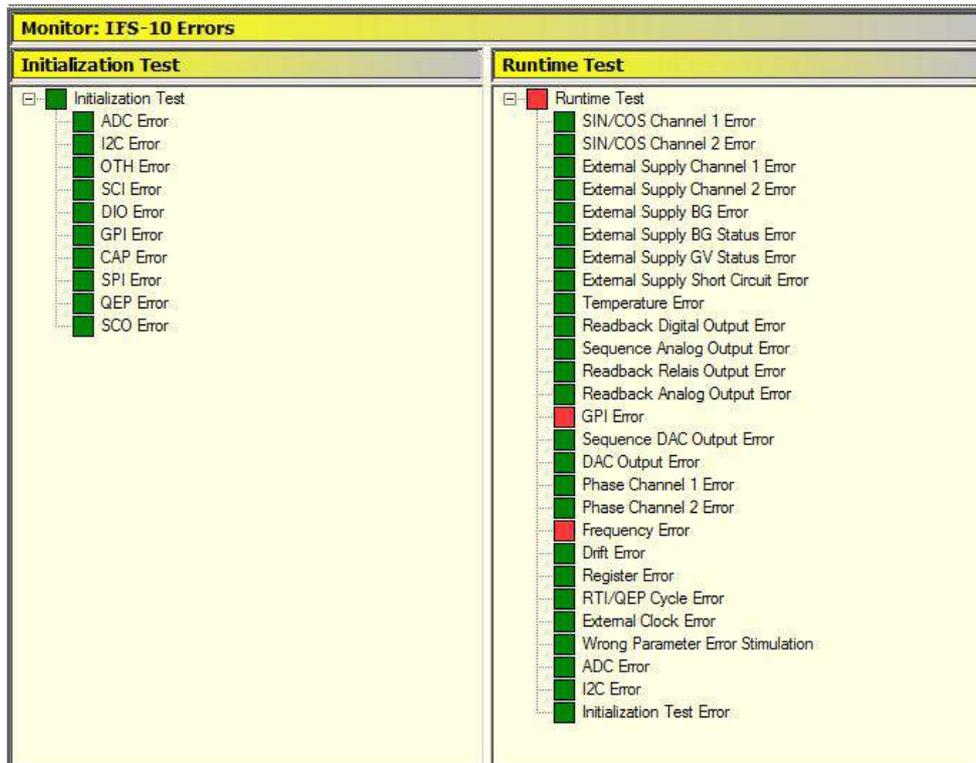


Figure 12 – Monitor / IFS-10 Errors

The list is divided into two groups: the **Initialization Test** group (left) and the **Runtime Test** group (right).

The **Initialization Test** group shows all the indicators which are checked once at the start-up or booting of the safety unit. The Runtime Test shows all the indicators which are always checked cyclically after starting or booting the unit.

The error identification is shown in the following table.

Display	Description
■	Indicator reports an error
■	No error occurred

Table 10 – Monitor / IFS-10 Errors – Error Identification

For complete information on the available indicators please refer to the specific "User's guide" of the unit.

### 2.6.2 IFS-10 Frequency

This monitor is mainly used as calibration tool for the sensors connected to the unit. All calibration-related data or results are summarized in two groups (the **Measurement** group and the **Result** group):

Monitor: IFS-10 Frequency				
Name	Frequency f <sub>j</sub> [Hz]	Multiplier m <sub>j</sub>	Divisor d <sub>j</sub>	Results r <sub>j</sub>
<b>Measurement</b>				
Sensor 1	481,76	1	1	481,76
Sensor 2	704,67	1710	2517	478,74
<b>Result</b>				
Ratio [%]				0,63

Figure 13 - Monitor / IFS-10 Frequency

The **Measurement** group displays all important information on the connected sensors. The current frequencies of both sensors are read cyclically from the IFS-10. The corresponding column of this component is automatically updated with the current values.

The **Result** group will show the result of the calibration.

#### 2.6.2.1 Frequency calibration via OS10.0

The frequencies can be calibrated directly in the parameter list of the IFS-10 unit:

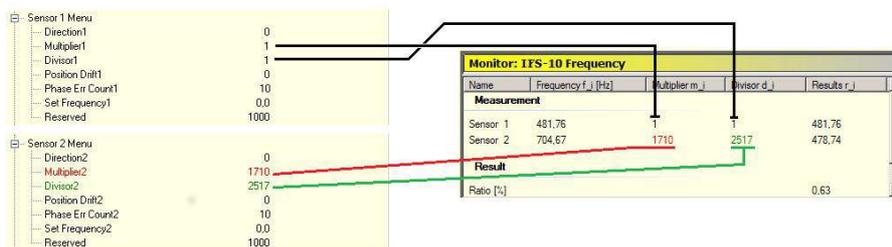


Figure 14 - Monitor / IFS-10 Frequency Calibration



**NOTE**

The calibration procedure can be accessed only in the **Programming mode**. For more information on the different colours and parameter values refer to the "2.3 Parameters" section on page 18.

Values and colours of the respective parameters are transferred automatically from the parameter list to the IFS-10 Frequency monitor component.  
 At each new setting, the result of the calibration will be calculated automatically and entered in the corresponding column of the result group.  
 A calibration only makes sense if the measured frequencies of both sensors are higher than zero. In all other cases a warning information appears (see the table):

Display Ratio [%]	Meaning	Notice
Indication of the relative deviation in a range of [-100% ;100%]	Both frequencies are higher than zero	Calibration possible
F1 is zero	The measured frequency of sensor 1 is zero.	Sensor 1 is in standstill or not connected. <b>No</b> calibration possible
F2 is zero	The measured frequency of sensor 2 is zero.	Sensor 2 is in standstill or not connected. <b>No</b> calibration possible
F1 and F2 are zero	Both measured frequencies are zero.	Both sensors are in standstill or not connected. <b>No</b> calibration possible

**Table 11 - Monitor / IFS-10 Frequency - Calibration Conditions**

For complete information on the calibration procedure please refer to the specific "User's guide" of the unit.

### 2.6.3 IFS-10 Monitor

This feature provides an easy way to monitor the state of the IFS-10. Depending on the requirements, one or more parameters can be monitored and stored in a so-called "log" file.

For each device the monitor loads adapted data or variable sets. The meaning of the monitor variables can be found in the corresponding manual of the device.

For a complete description of the monitor and its functionality refer to the specific "User's guide" of the unit.

#### 2.6.3.1 Overview

The IFS-10 Monitor window is organized into four sections or modes (see the Figure below).

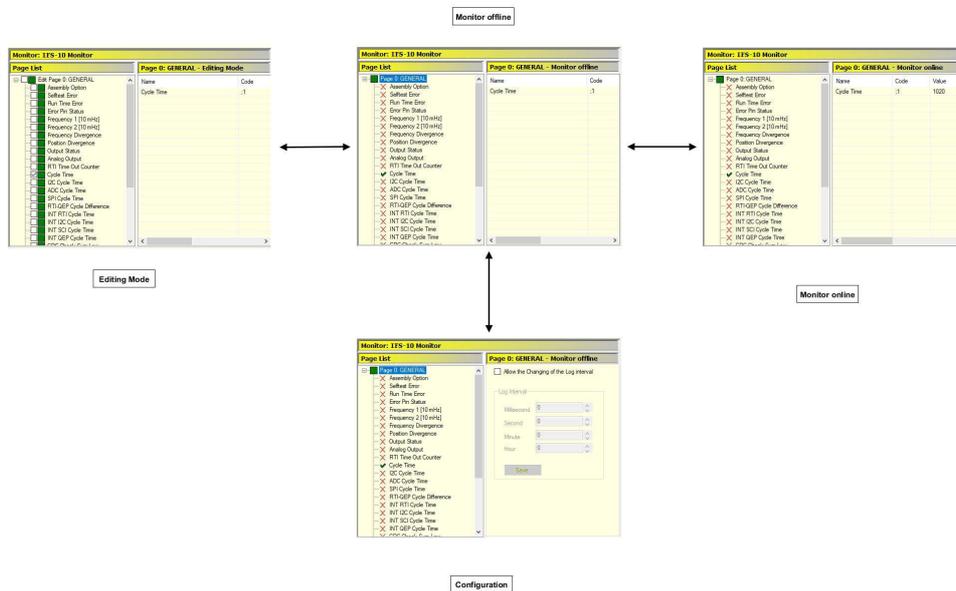


Figure 15 - Monitor / IFS-10 Monitor - Overview

The function of each section / mode is summarized in the following table.

Name	Function
Monitor Offline	<u>Display mode</u> All available or selected variables are displayed
Monitor Online	<u>Monitor mode</u> Cyclic readout and displaying of the selected variables
Editing Mode	<u>Editor mode</u> Selection of one or several monitor variables for the monitoring mode
Configuration	<u>Configuration mode</u> This mode is used to set monitor-specific configurations

Table 12 - Overview / IFS-10 Monitor

### 2.6.3.2 General handling

The IFS-10 Monitor is very easy to use either by means of a pop-up menu or the control buttons (as shown in the following Figure):

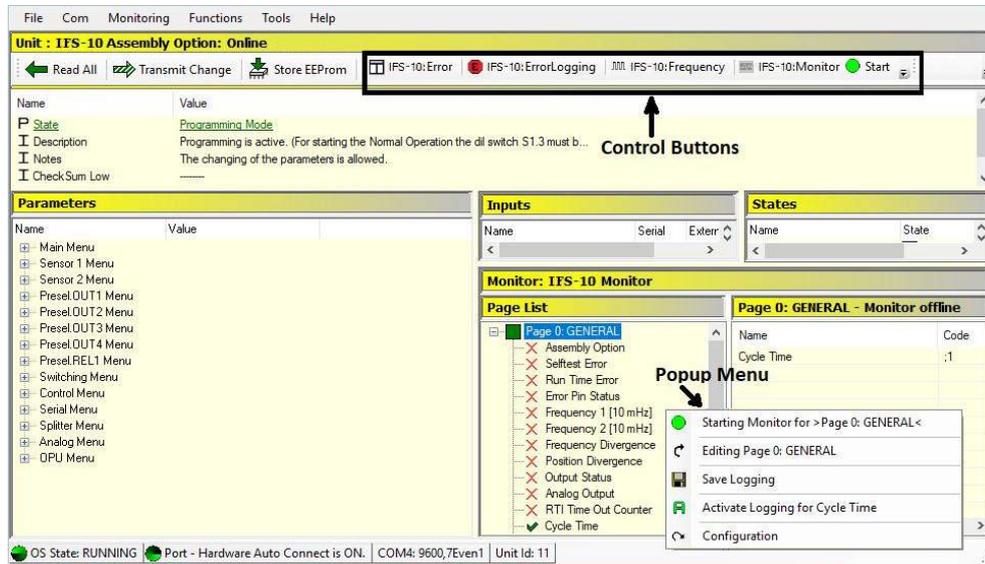


Figure 16 – Monitor / IFS-10 Monitor / Pop-up Menu and Control Buttons

Depending on the used modes, different pop-up menus and control buttons are available when the pop-up menu is the main control of the monitor. It opens by means of a right-click of the mouse on the page list (see also the Figure above).

Unusable controls are greyed out automatically.

2.6.3.3 Display mode: Monitor Offline

**Monitor Offline** is a display only or overview mode and shows the selected set of variables. After starting the monitor, this mode is displayed automatically.

The monitor is divided into two sections: the **Page List** section (left) and the **Monitor Panel** section (right).

**Page List**

All variables to be monitored by the Monitor are marked with a green tick ✓ icon. These variables are also shown in the Monitor Panel (on the right).

All the other parameters are marked with a red cross ✗ icon.

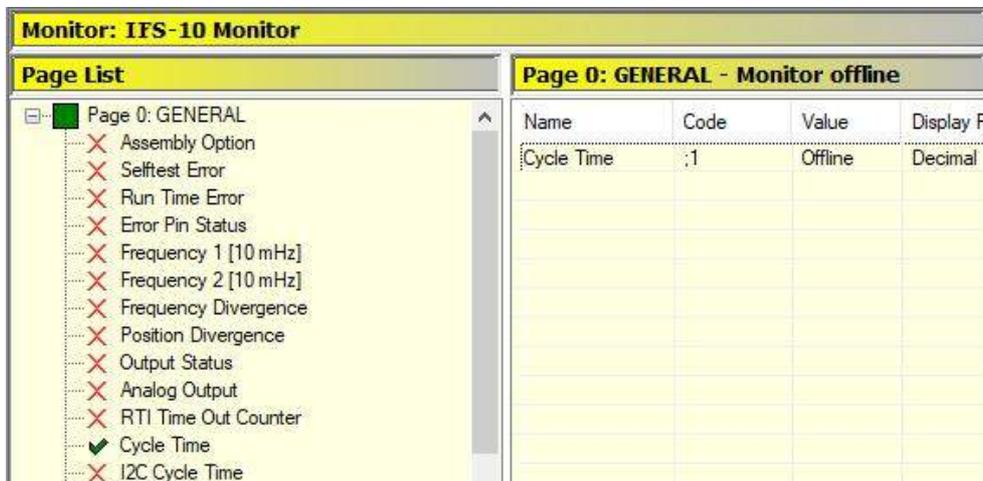


Figure 17 - Page List / IFS-10 Monitor / Monitor Offline

**Monitor Panel**

In the **Monitor Panel** (on the right) all variables to be monitored are shown. In the Figure above, the **Cycle Time** variable is available and monitored.

The Monitor Panel is described by means of four columns:

Column	Meaning
Name	Name of the variable
Code	Code of the variable
Value	Used to identify the <b>Monitor Offline</b> state, "Offline" is always shown.
Display Format	Not relevant for this mode

Table 13 - Monitor Field / Columns

**Selection of the specific variable data set**

The selection of the specific variable data set takes place directly in the parameter list by means of the **Serial Page** parameter in the Serial menu (see the Figure below).

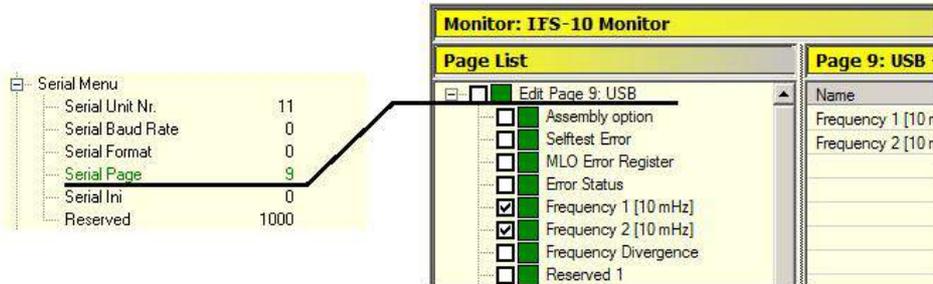


Figure 18 - Monitor / IFS-10 Monitor / Selection of a Page

A page change occurs automatically after a successful transfer of the **Serial Page** parameter (see above) or after reading this parameter from the connected IFS-10.

After such a page change the monitor automatically switches to the Display mode (**Monitor Offline** state).

**Menus and controls**

The following menus / controls can be used in the Display mode (see the Figure below).

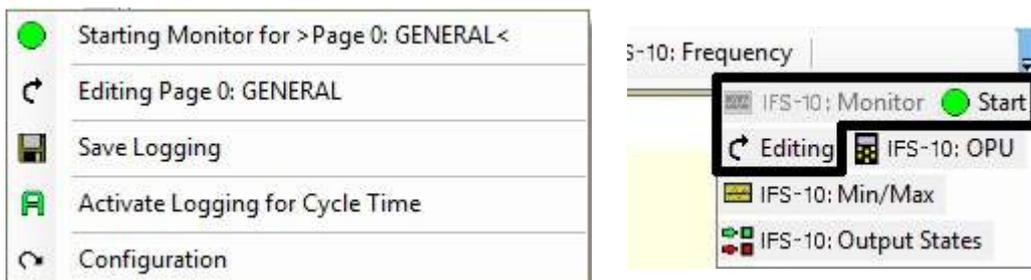


Figure 19 - Monitor – Monitor Offline / Pop-up menu and Control buttons (right)

The table below explains the function of each control. The controls that cannot be used are not listed.

Pop-up menu	Control button	Function
 Starting Monitor for Page 0: GENERAL		Switches to the Monitor mode
 Editing Page 0: GENERAL		Switches to the Editor mode
 Save Logging		Saves the Logging *)
 Activate Logging for Cycle Time		Activates the Logging for Cycle Time *)
 Configuration	-	Switches to the Configuration mode *)

**Table 14 - Monitor Offline / Controls**

\*) The use is explained as part of the logging, see the "2.6.3.6 Data Logging" section on page 38.

### 2.6.3.4 Monitor mode: Monitor Online

This mode is the the current monitor or monitoring mode.

#### Page List

The **Page List** (see below) displays all the available variables.

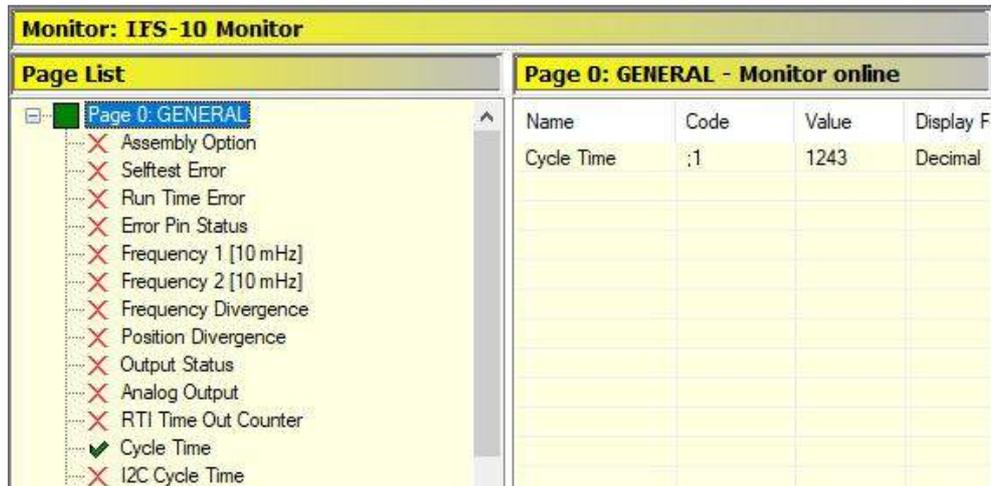


Figure 20 - Monitor / IFS-10 Monitor / Monitor Online

#### Monitor Panel

All variables shown in this list are read cyclically from the IFS-10 unit and the values are displayed in the **Value** column. The example above shows the **Cycle Time** variable as an example. For each variable the display format can be specified individually (see the table below).

Column	Meaning							
<b>Name</b>	Name of the variable							
<b>Code</b>	Code of the variable							
<b>Value</b>	It shows the parameter value that is read currently							
<b>Display Format</b>	The current display format in the Monitor Online mode. Three different display formats are available:							
	<table border="1"> <thead> <tr> <th>Format Name</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>Decimal</td> <td>Decimal display (standard)</td> </tr> <tr> <td>Hex</td> <td>8-digit hexadecimal display</td> </tr> <tr> <td>Binary</td> <td>32-digit binary display</td> </tr> </tbody> </table>	Format Name	Meaning	Decimal	Decimal display (standard)	Hex	8-digit hexadecimal display	Binary
Format Name	Meaning							
Decimal	Decimal display (standard)							
Hex	8-digit hexadecimal display							
Binary	32-digit binary display							
	The format can be changed by pressing the corresponding variable line.							

Table 15 - Monitor Field / Display Formats

**Monitoring: cyclic reading of parameters**

The monitor works in so-called "cycles". The monitor panel (right) is a cyclical process, it is executed starting from the top down to bottom and only one variable is recorded per cycle.

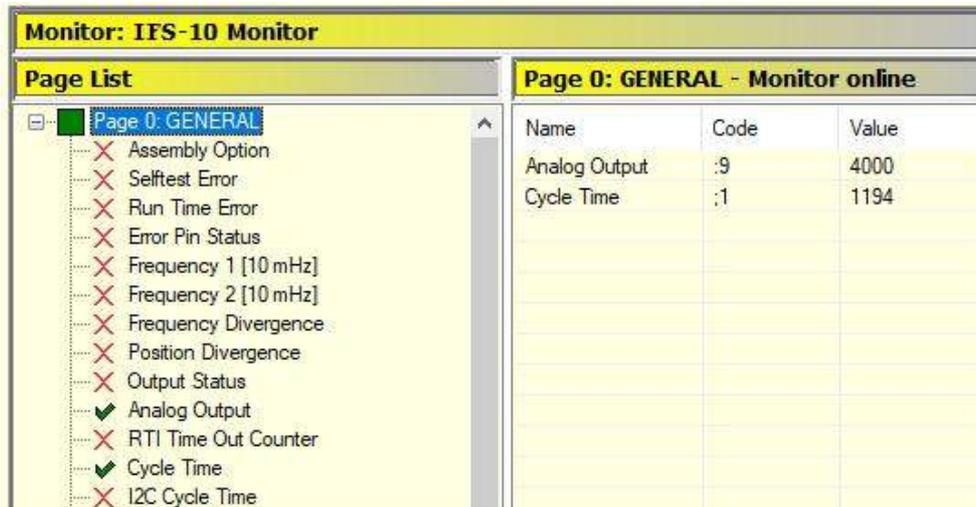


Figure 21 - Monitor / Monitor Online - Example

In the example above the cyclic reading is carried out as follows:

- 1<sup>st</sup> cycle: **Analog Output**
- 2<sup>nd</sup> cycle: **Cycle Time**
- 3<sup>rd</sup> cycle: **Analog Output**
- 4<sup>th</sup> cycle: **Cycle Time**
- 5<sup>th</sup> cycle: etc.

**Menus and controls**

The following controls are available in this mode:



Figure 22 - Monitor Online – Pop-up menu (left) and Control buttons (right)

The table below explains the task of each control. Unusable controls are not listed.

Pop-up menu	Control button	Note
 Stopping Monitor for >Page 0: GENERAL<	 Stop	Switches to the Display mode

Table 16 - Monitor Online / Controls

2.6.3.5 Editor Mode: Editing Mode

The **Editing Mode** is used to select the variables to be monitored.

**Page List**

The **Page List** (on the left) is used to select or deselect the desired variables. The selected variables are marked by means of the selected checkbox  next to the name of the variable. The selected variables are also shown in the Monitor panel (see on the right). Unchecked variables are marked with an empty (not selected)  checkbox.

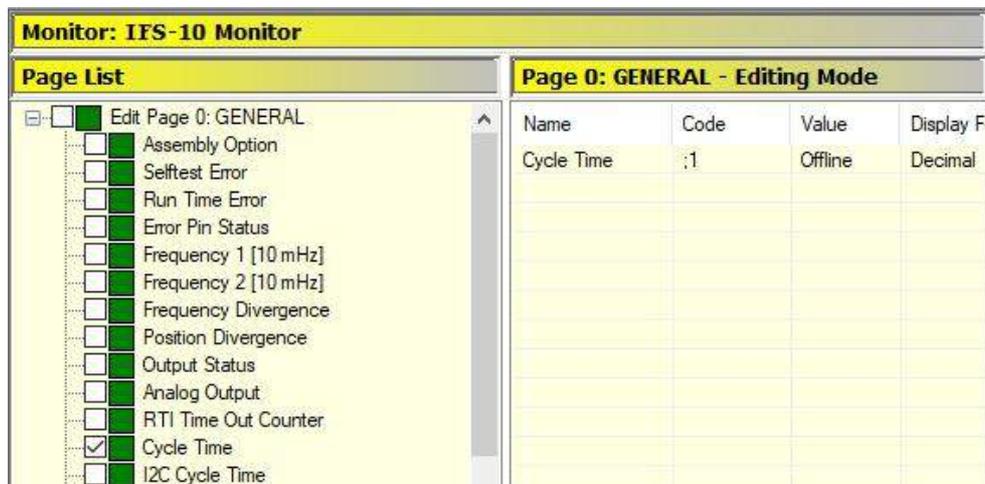


Figure 23 - Page List / IFS-10 Monitor / Editing Mode

To select / deselect the variables, simply select the checkbox next to each parameter name. The **Monitor panel** is automatically updated accordingly.

**Monitor panel**

Only the selected parameters are displayed in the Monitor panel. The available columns and features are described below:

Column	Meaning
Name	Name of the variable
Code	Code of the variable
Value	Used to identify the <b>Editing Mode</b> state, "Offline" is always shown.
Display Format	Not relevant to this mode.

Table 17 - Monitor panel / Meanings

Menus and controls

The following controls are available in this mode:



Figure 24 - Editor Mode / Pop-up menu (left) and Control buttons (right)

The table below explains the task of each control. Unusable controls are not listed.

Pop-up menu	Control button	Note
Closing the editing of >Page 0: GENERAL<	Close	Switches to the Display mode
Save and close editor	Save and close	Switches to the Display mode In addition, this selection is saved in a device-dependent configuration file and is available for later use.
Save Logging	-	Saves the Logging *)
Activate Logging for all parameters.	-	Activates the Logging for all variables*)

Table 18 - Editor Mode / Controls

\*) The use is explained as part of the logging, see the "2.6.3.6 Data Logging" section in the next page.

2.6.3.6 Data Logging

For each selected variable a dedicated data log can be created. The most important properties are listed in the following table.

Data Log property	Note
Individual data log	Each variable has his own data log.
Deleting the entries	When the monitor is started (change to Monitor mode), all logs are ALWAYS cleared automatically.
Maximum size	A data log consists of a maximum of 10,000 entries. When the number of entries of 10,000 is reached in a data log, then no new entry is added.
Save and evaluate	Each data log can be saved to a file. The stored data can be managed and evaluated using a suitable program.

Table 19 - Data Logging / Properties of a log

**Restriction for logging: time interval**

The time interval of logging is limited for two reasons.

Limitation on...	Description
Data transfer	A serial data transfer takes some time. Unfavourable configuration settings can significantly degrade the time resolution.
OS10.0	The monitor has to share the serial port with the other components.  The OS10.0 also manages other components in addition to the monitor, such as the Inputs (see on page 22), the Outputs (see on page 23), or the programming of the parameters (see on page 18). All these components communicate with the connected device via the same serial interface.



**NOTE**

The time interval between two log entries is at least ~330-375 msec.

In addition, the specification of a minimum log distance described below is subjected to the above restriction.

**Description of the logging**

For the sake of simplicity, the logging is explained using an example and requires the following steps:

1. **Selection of the variables**, see below
2. **Execution of the logging**, see on page 43
3. **Saving and evaluation**, see on page 44
4. **Special settings**, see on page 47

**Selection of the variables**

The selection of the parameters is made optionally in either Display or Editor mode.

As the selection procedure is the same in both modes, it is only shown in Display mode. The example used here implies that the desired parameters have been previously selected in the Editor mode.

The starting situation is shown in the following Figure.

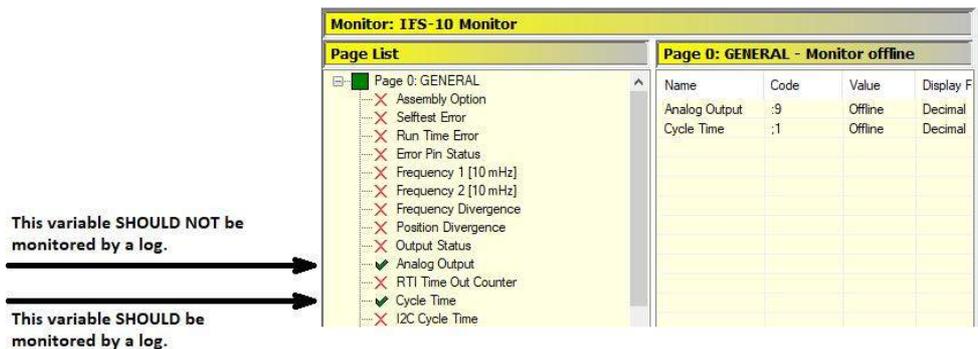


Figure 25 - Logging - Selection of parameters: initial situation

The **Analog output** variable does NOT need to be monitored by a log. The **Cycle time** variable needs to be monitored by a log. So you must activate the **Cycle Time** variable (e.g. by pressing the mouse).

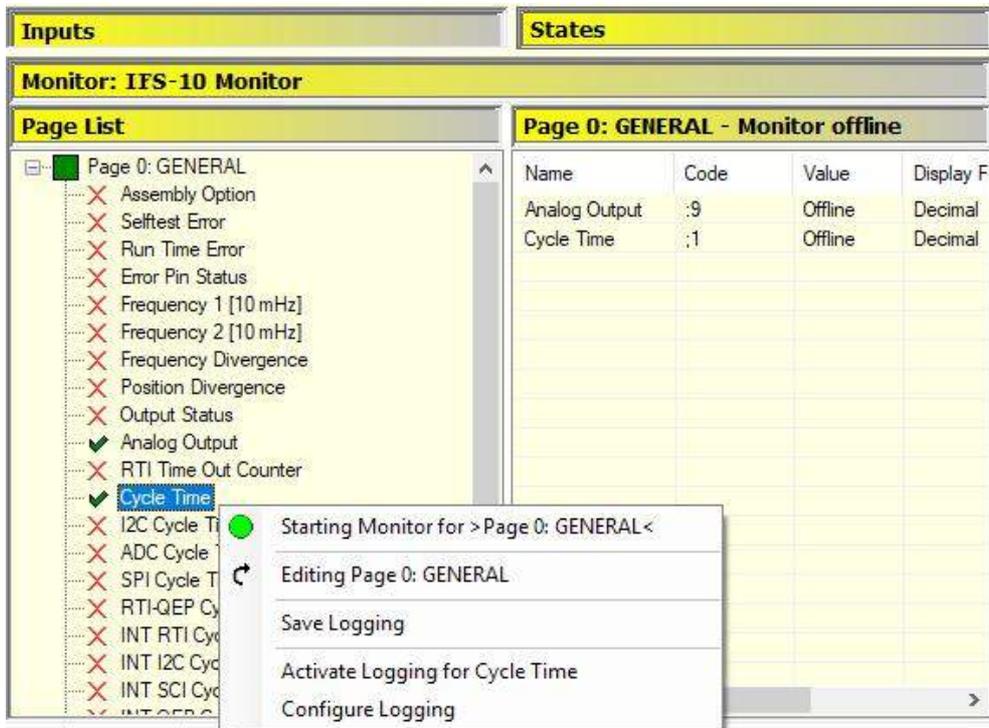


Figure 26 - Logging - Selection of parameters: choice of a parameter

Right-click on the variable to be monitored and open the pop-up menu. Make sure that the desired variable is shown in the corresponding menu (see the Figure below).

Activate the logging by pressing the  **Activate Logging for Cycle Time** command.

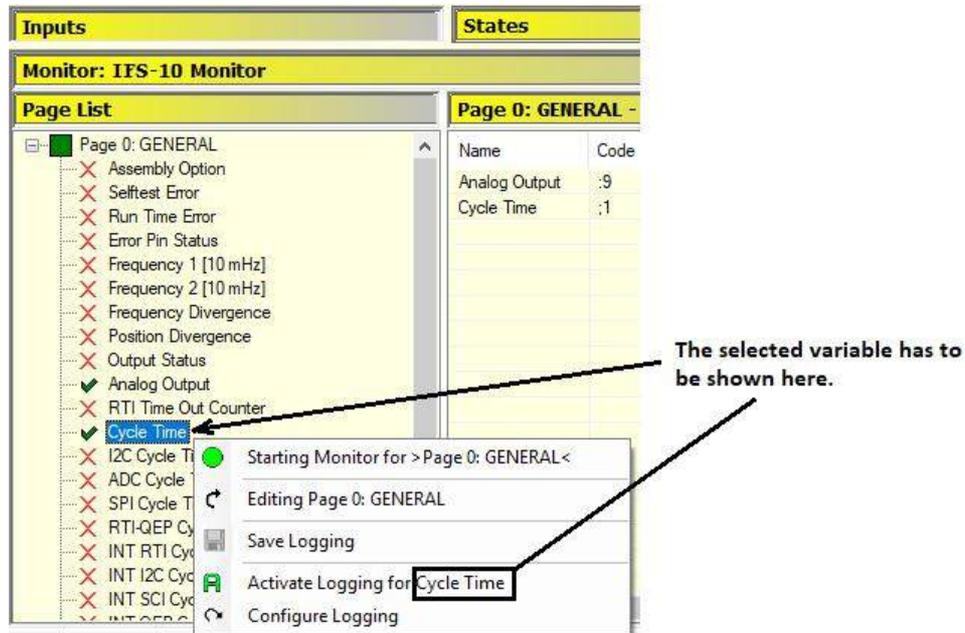


Figure 27 - Logging - Selection of variables: choice of variable - before activation

The activated variable is automatically displayed in *italics and underlined* both in the **Page list** and in the **Monitor panel** (see the Figure below).

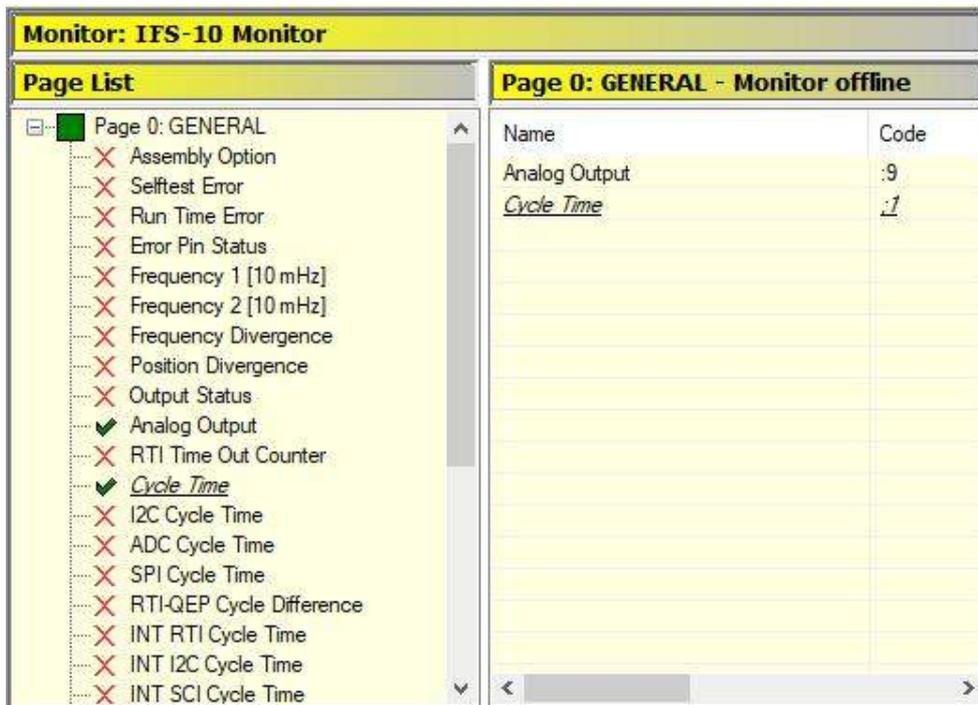


Figure 28 - Logging - Selection of variables: choice of variable – after activation

The deactivation of this single variable is done the same way by pressing the **D DeActivate Logging for Cycle Time** command. Therefore it will not be explained further here. Of course, other variables or all variables can be activated or deactivated in the same way.

*Execution of the logging*

Start the monitor by switching to the Monitoring mode (see the Figure below).

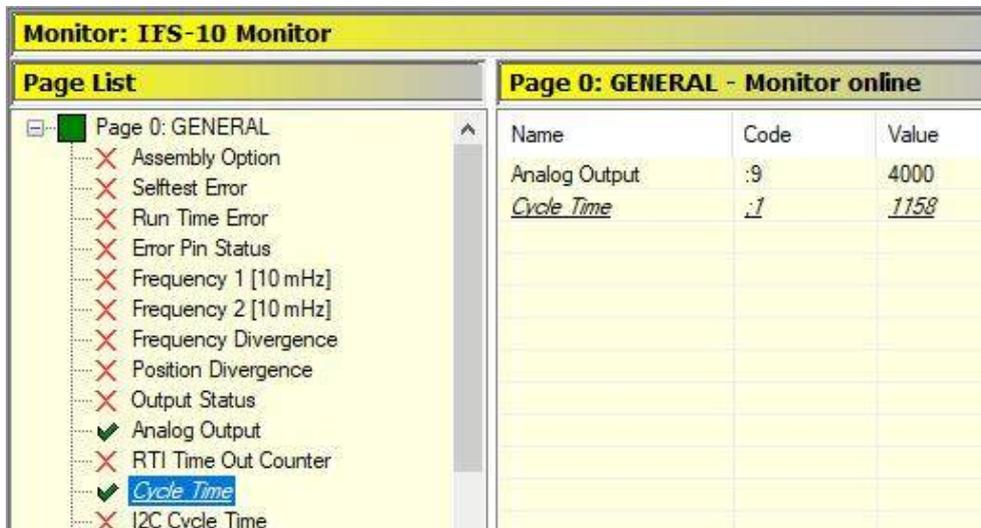


Figure 29 - Logging - Execution

The logging operation runs automatically and ends either by ending the Monitoring mode (you switch to the Display mode) or by reaching the maximum number of 10,000 entries.

*Saving and evaluation*

The saving of the data can be done either in Display mode or in Editor mode. As the selection process is the same in both modes, it is shown only in Display mode.

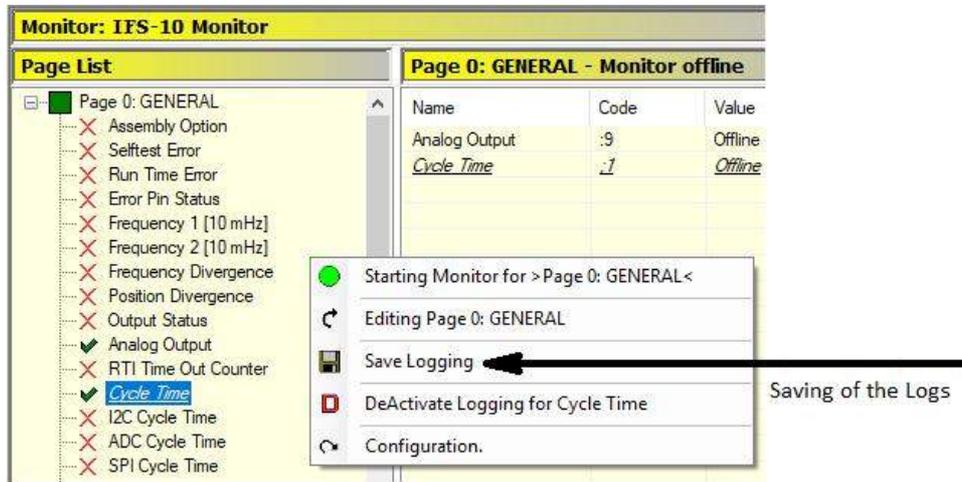


Figure 30 - Logging – Saving of the Logs

The logs to be recorded are saved by pressing the  **Save Logging** command.

**Location of the Log files**

Every Log is saved in a subdirectory (...\Os100\Monitoring) of the OS10.0 directory. This directory cannot be changed (see the Figure below).



Figure 31 - Logging – Location of the Log files

**Name of a log file**

The name of a log file is generated automatically according to the following pattern:

< date of saving >\_<time of saving>\_<name of variable >.txt .

The date of saving is written in big-endian format (YearMonthDay). The time of saving has the pattern "HourMinuteSecond".

**Structure of a Log**

The Log is structured as a simple text file (see the Table below).

Example of a Log	Note
#;Name;Code;LogTime;Value	<- heading
0;cyletime;":4";+2-2019.09.19-13:24:41.900;+3973	<- entry 0 (starting entry)
1;cyletime;":4";+2-2019.09.19-13:24:42.588;+3684	<- entry 1
2;cyletime;":4";+2-2019.09.19-13:24:43.306;+3972	<- entry 2
3;cyletime;":4";+2-2019.09.19-13:24:44.056;+3973	<- etc.
...	...
9999;cyletime;":4";+2-2019.09.19-15:21:22.798;+4127	<- entry 9,999 (max. possible entry)

**Table 20 - Data Logging / example of a log**

The first line of a Log is always a heading followed by the starting entry (entry 0). After this the other log entries are listed. A log has a maximum of 10,000 entries (0 ... 9,999).

### Structure of a Log entry

The entry is divided into five parts separated by a semicolon (;) and has the following structure:

<Number>;<Name>;<Variable Code>;<Time Stamp >;< Value >

#	Part	Note
1	Number	Current number of the entry; range of the value [0;9999]
2	Name	Name of the entry
3	Variable Code	Code of the selected variable  This part is always put in quotation marks and has the following structure: "<Variable Code>"  Reason: As it is a code, values such as "; 4" or "; 9" are accepted. Therefore the quotes identify the code.
4	Time stamp	Time when the entry has been created.  Structure of a time stamp: z-yyyy.MM.dd-hh.mm.ss.fff where:  z (time zone) yyyy (Year), MM (Month), dd (Day), hh (24-hour representation), mm (Minutes), ss (Seconds), fff (Milliseconds)
5	Value	Logged value of the selected variable

**Table 21 - Data Logging / structure of a log entry**

*Special settings*

By means of the Configuration mode a minimum log interval between two log entries can be specified.

**NOTE**

As a result of the limitations explained in the "Restriction for logging: time interval" section on page 38, only a minimum interval between logs can be specified. An exact specification of this interval is not possible.

**Switching to the configuration mode**

By means of the pop-up menu  Configuration you can switch from the Display mode to the Configuration mode (see the Figure below).

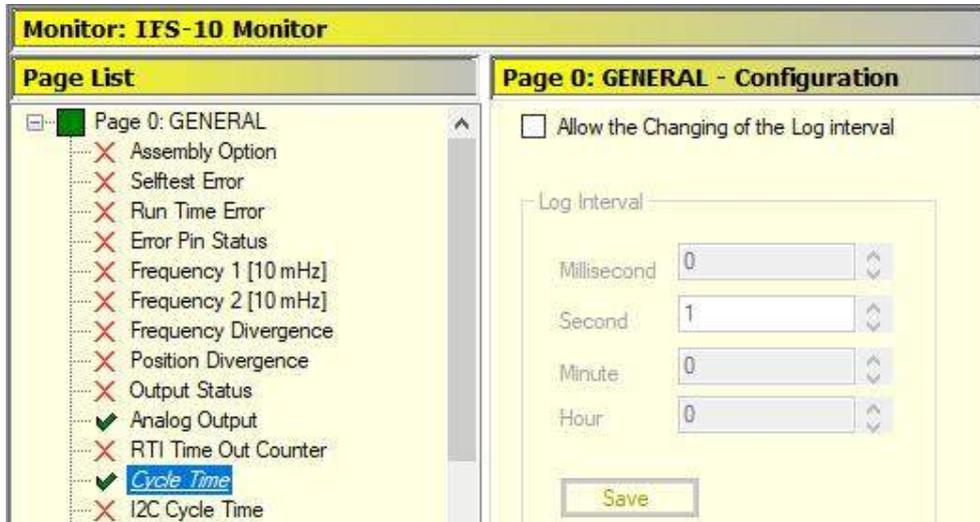


Figure 32 - Logging – Configuration mode: List of variables (left) and field of configuration (right)

**Field of configuration (right)**

The field of configuration is protected against unintentional changes. To make changes, the field  Allow the Changing of the Log interval has to be activated by selecting the checkbox (see the Figure below).

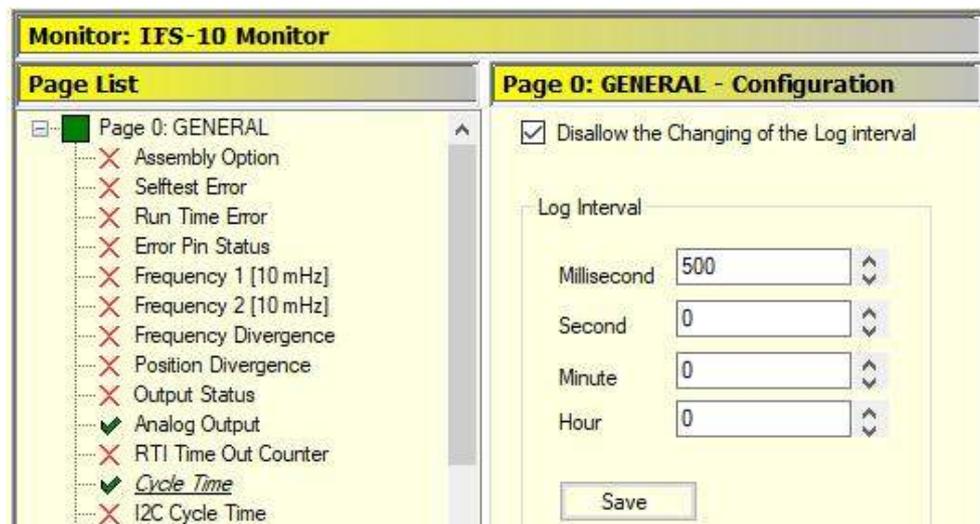


Figure 33 - Logging – Configuration mode: changing/input of a logging interval

To set a minimum interval between logs, you must configure the time parameters listed below.

Setting box	Note
	Allows to set the milliseconds; Range [0,999]
	Allows to set the seconds; Range [0,59]
	Allows to set the minutes; Range [0,59]
	Allows to set the hours; Range [0,23]

Table 22 - Data Logging – Configuration mode: setting boxes



**NOTE**

The minimum time interval between two log entries set here and limited according to the explanation in the "Restriction for logging: time interval" section on page 38 CANNOT be broken.

**Menu and controls**

The following controls are available in this mode:

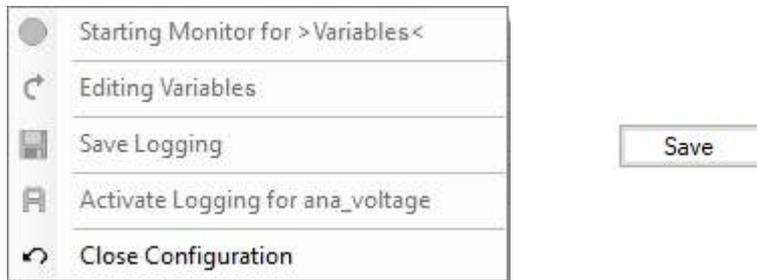


Figure 34 - Logging – configuration mode: Pop-up menu (left) and Control buttons (right)

The table below explains the task of the individual controls. Unusable controls are not listed.

Pop-up menu	Control button	Note
↶ Close Configuration		Takeover of the log interval and switch to the Display mode.
		Saving of the log interval in a Config file.

Table 23 - Data Logging – Controls

### 2.6.4 IFS-10 Error Logging



**NOTE**

The IFS-10 Error Logging can be used only in the Programming mode. In all other modes this monitor is blocked (the same as in the parameter list).

In case of IFS-10 errors, this monitor can save the internal state data to a file. This backup data can be used later for further error analysis.

#### Overview of the IFS-10 Error Logging

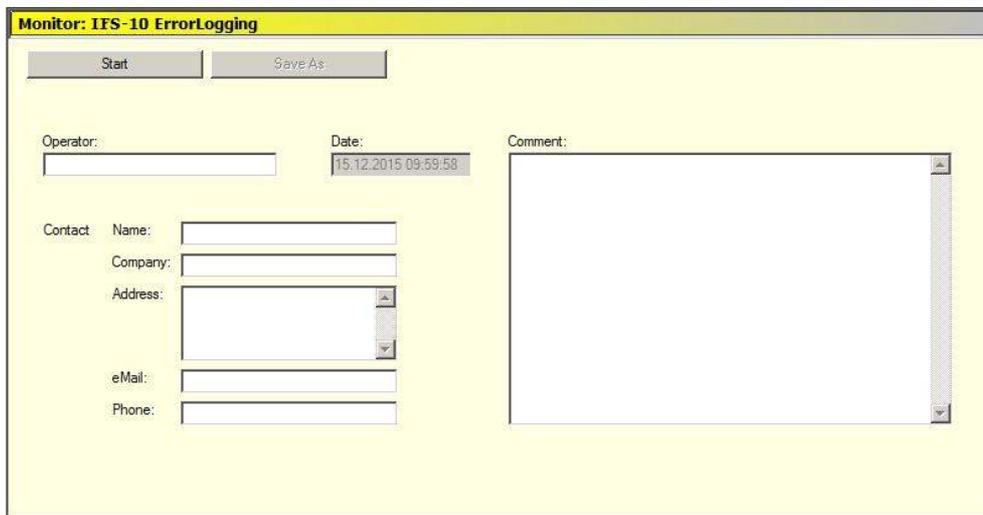


Figure 35 – Monitor / IFS-10 Error Logging

## Monitor Components

The monitor consists of the following components:

Component		Description
Operator		Input field: Name of the operator
Date		Current date (it is entered automatically)
Contact	Name	Input field: name of the contact person
	Company	Input field: name of the company
	Address	Input field: company or contact address
	eMail	Input field: e-mail address
	Phone	Input field: phone number
Comment		Input field: description of the error
START button		Button to start the Error Logging
SAVE AS button		Button to save the Error Logging

Table 24 - Monitor / IFS-10 Error Logging - Components

### What data will be saved?

The backed-up data are divided into four main groups:

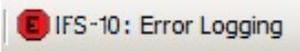
1. **OS10.0 information:** including name and current OS10.0 version
2. **Customer information:** including all data from the input fields (see above)
3. **General device data:** including main device information, the complete parameter data set, a complete list with the unit states as well as...
4. ... the special **Error and Monitor data** with a list of all IFS-10 Error Monitor entries and all IFS-10 Monitor pages.

### Result of the Error Logging

The error logging provides an XML file which is stored by default inside the OS10.0 directory.

### Workflow of Error Logging

The implementation of error logging is easy and mostly automated. The logging process always follows the same pattern:

#	Step	
1	Close the Error Logging Monitor	<p>In case of an open Error Logging monitor, please close the monitor.</p> <p> Current device data will be read only as soon as the Error Logging monitor opens.</p>
2	Switch the unit to the "Programming Mode"	<p>Verify that the IFS-10 is in "Programming Mode". If not, the "Programming Mode" must be activated by using the DIL switch.</p> <p> The complete IFS-10 monitor data set can only be read if the "Programming Mode" is active.</p>
3	Update the parameter data	<p>Be sure that the OS10.0 displays the parameter values which were active when the error occurred. If necessary, load the complete data set from the unit again (by using the <b>READ ALL</b> button).</p> <p> For error analysis, the real parameter values of the device which were active when the error occurred are needed. Other values can significantly cause trouble or even stop the analysis.</p>
4	Open the Error Logging Monitor	<p>Open the Logging monitor by pressing </p>
5	Start Error Logging	<p>Start Logging by pressing the <b>START</b> button. The monitor header shows the current logging status.</p>
6	Enter customer data	<p>After logging, information or customer data can be entered.</p> <p> Providing information or customer data is optional, but it can be useful to fill out the following fields:</p> <p>Comment: Please enter a precise error description.</p> <p>eMail or Phone: Please fill out one of these fields, to receive a feedback of the error analysis.</p>
7	Save the logging data	<p>Press the <b>SAVE AS</b> button to save data. After pressing the button, an input field opens to enter the file name automatically.</p>

### 2.6.5 IFS-10 OPU Display

The IFS-10 OPU monitor allows to pre-configure the (scalable) displays 3 and 4 of the display and programming unit IFS-10-PM. Then each IFS-10-PM connected to an IFS-10 unit shows the same display scaling.



#### WARNING

This feature is available for IFS-10-PM units from the firmware version BG23003A.

This feature is available for IFS-10 units from the firmware version DS23004A.

The following figure explains the relationships.

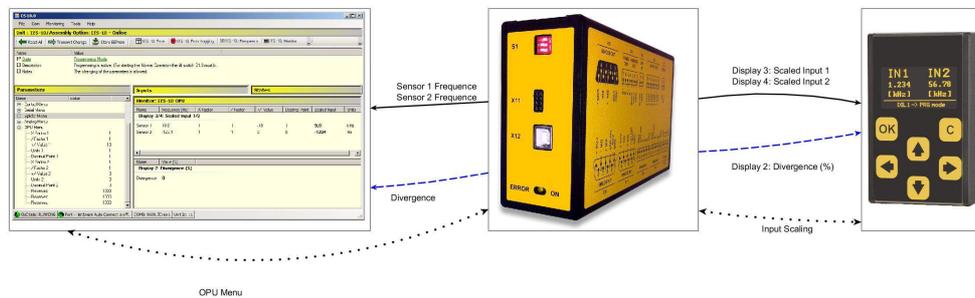


Figure 36 - Relationships between OS10.0 <-> IFS-10 <-> IFS-10-PM

The figure shows (from the left) the OS10.0 program interface, the IFS-10 safety unit and the IFS-10-PM programming display.

All parameters necessary to scale the display of an IFS-10-PM are available in the IFS-10 unit (see black dotted lines in the Figure above). The OS10.0 reads the parameter set and displays it in the parameter list of the OPU Menu. Individual parameters can be changed and written back to the IFS-10. The changes made in the parameter list are displayed in the IFS-10 OPU - Display 3/4: Scaled Input 1/2 monitor. The result can be checked in the Scaled Input column (see the Figure below).

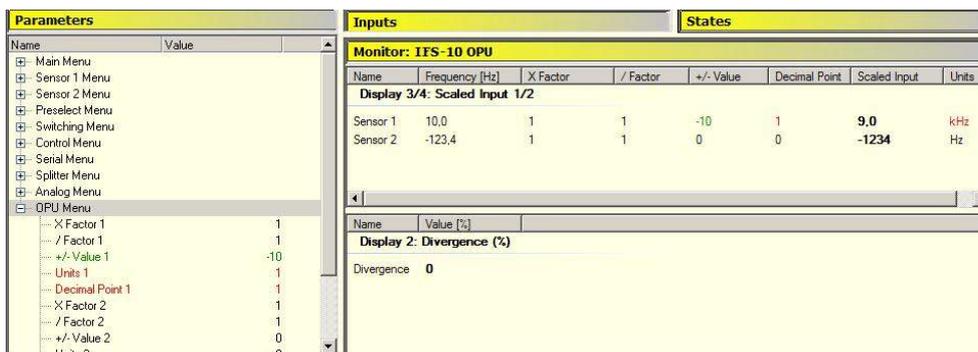


Figure 37 - OPU Parameter Menu (left) and Monitor: IFS-10 OPU (right)

The values of the Scaled Input column correspond to the values of Display 3 and 4 of the IFS-10-PM (see the Figure 17, black line). The corresponding deviation (Divergence) of both values is shown in the IFS-10 OPU - Display 2: Divergence (%) monitor. The indicated value corresponds to the Display 2 value of the IFS-10-PM unit (see Figure 17, blue dashed line). A detailed description of this value and the calculation can be found in the "User's guide" of IFS-10 unit.

2.6.6 IFS-10 Min-Max Monitor

By means of this monitor, two parameters of a parameter set (see also the "2.6.3 IFS-10 Monitor" section on page 28) can be monitored for minimum and maximum values. Two channels are available for monitoring. Both "channels" are independent of each other and can be configured separately (see the Figure below).

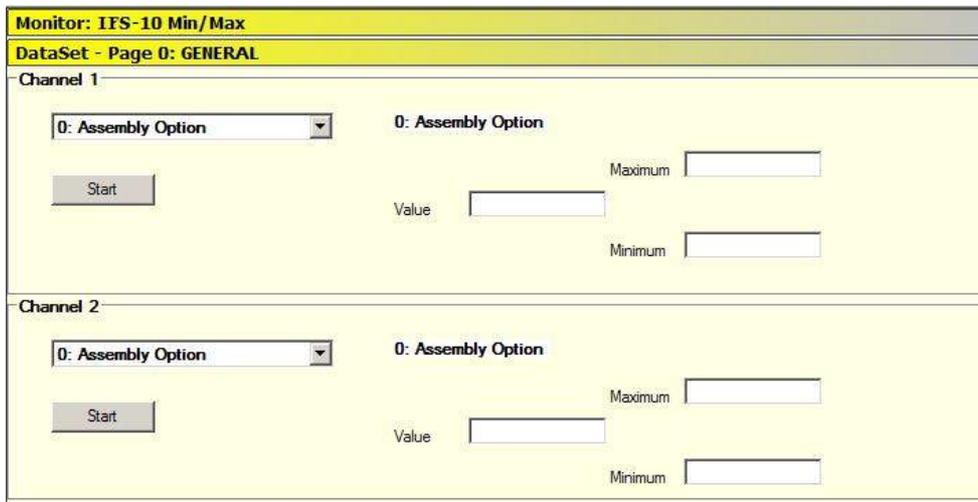


Figure 38 – Monitor / Min Max / Overview

**Selecting the parameter set**

The selection of the parameter set is described in the "Selection of the specific variable data set" section on page 31. If the parameter set changes, the monitor is automatically stopped and all displayed values are reset (see the Figure above).

The name of the selected parameter set appears at the top of the "DataSet" header.

**Parameter channel**

Both channels have the same structure. A parameter can be selected using the selection drop-down menu. The selected parameter is automatically displayed on the right of the selection drop-down menu. The fields "Value", "Maximum", and "Minimum" are used to display the current value, the maximum value, and the minimum value of the current measurement operation respectively.

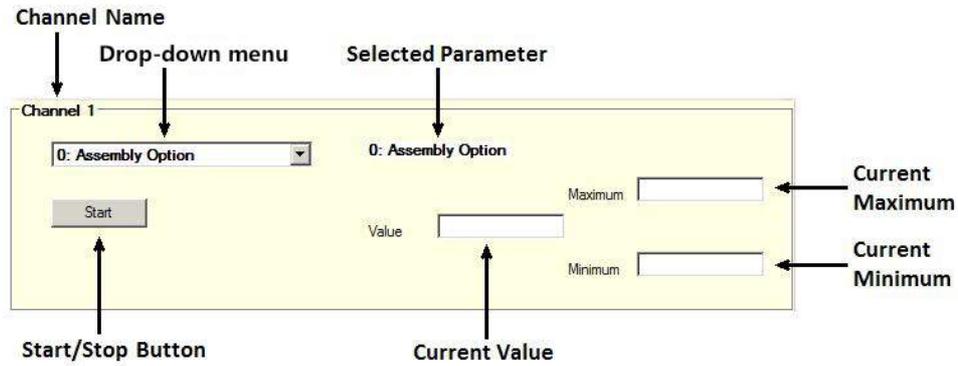


Figure 39 - Monitor / Min Max / Parameter channel

The measurement is started by pressing the **START/STOP** button. After starting the operation, the selection drop-down menu will be greyed out. The current value, the maximum value, and the minimum value of the current measurement are updated continuously (see the Figure below Channel 2). The measurement is stopped automatically by pressing the **START/STOP** button.

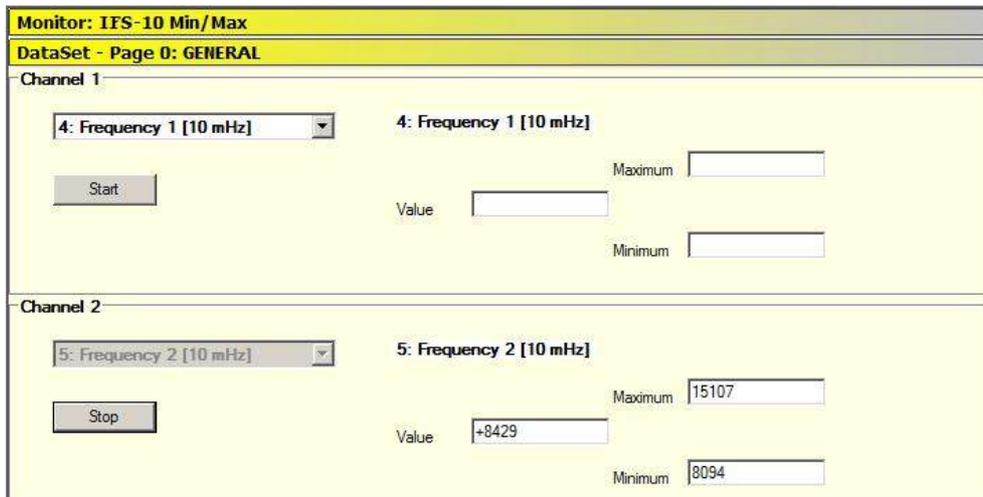


Figure 40 - Monitor / Min Max / Measurement

### 2.6.7 IFS-10 Output States Monitor

This monitor enables the direct monitoring of the switching states of the outputs OUT1 to OUT4 (see the "Control outputs" section in the "User's guide" of the IFS-10 unit) and of the relays (see the "Relay output" section in the "User's guide" of the IFS-10 unit).



#### WARNING

This monitor is available for devices with firmware version 23004A or higher and is automatically greyed out for all other versions.

#### Setting the parameter set

After opening the monitor, the serial page parameter must be checked in the serial menu. If the parameter has a value other than 12, the monitor is automatically blocked (see the Figure below).

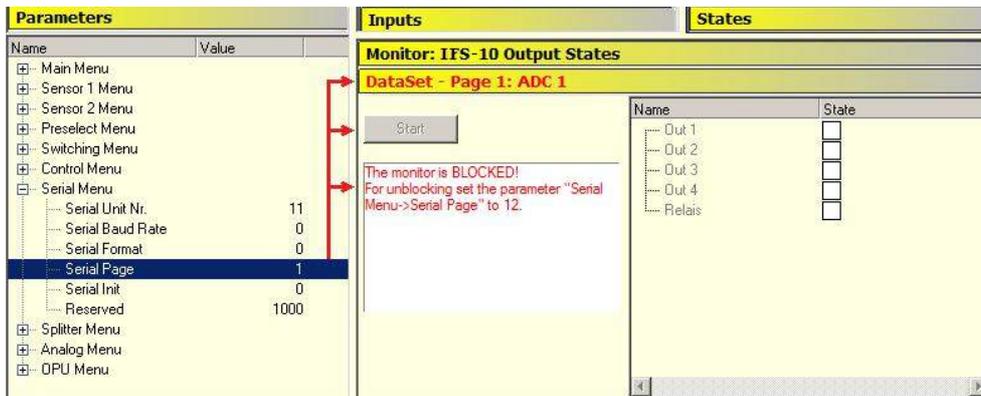


Figure 41 – Monitor / Output States / Blocked Monitor: Incorrect setting of the serial page parameter

In this case, the serial page parameter must be set to 12 and transferred to the connected IFS-10 unit. A page change occurs automatically after a successful transfer of this parameter. After that, the "Monitor" page is automatically unlocked (see the Figure below).

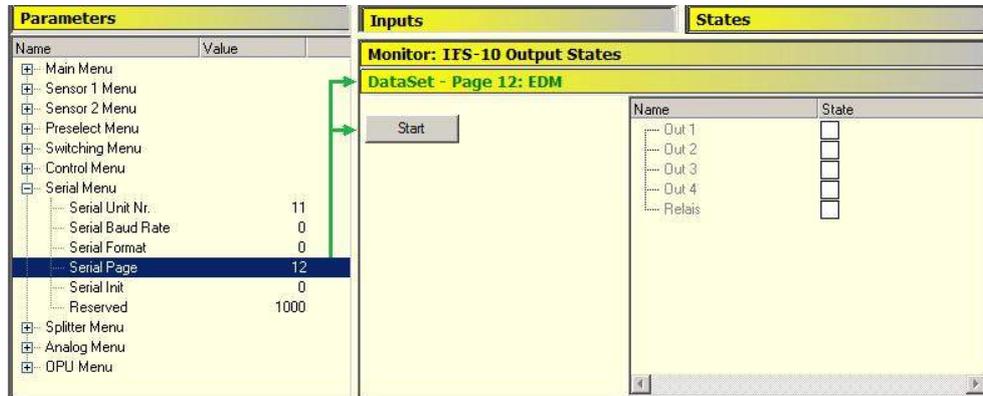


Figure 42 - Monitor / Output States / Unblocked Monitor: Correct setting of the "serial page" parameter

### Monitor Setup

The monitor consists of a **START/STOP** button (left) and a display field (right). The display field consists of a list of the existing outputs and their states (see the Figure below).

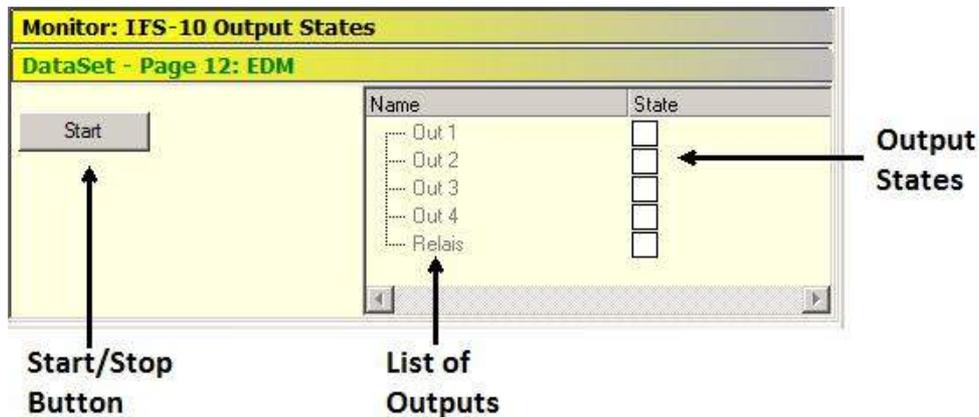


Figure 43 - Monitor / Output States / Monitor Setup

The monitor is activated by pressing the **START** button. After starting, the switching states of the outputs are read continuously, evaluated, and displayed in the corresponding "State" column (see the Figure below).

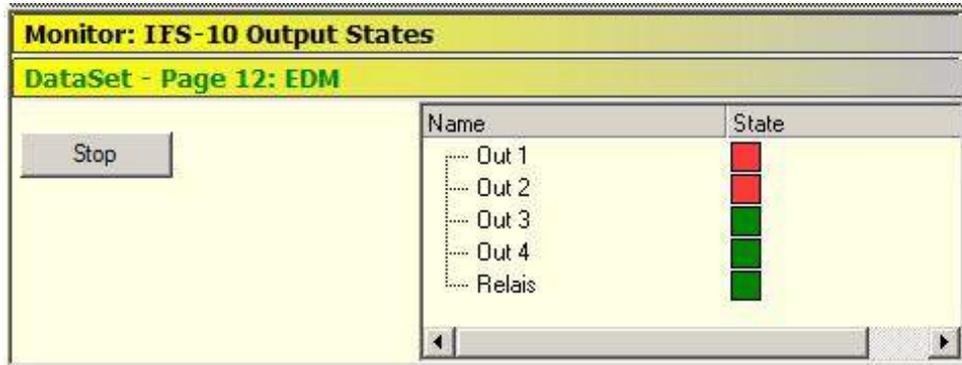


Figure 44 - Monitor / Output States / Active Monitor

Each output can have one of the following statuses:

Status	Icon	Note
Unknown	<input type="checkbox"/>	Switching state is not yet known (Start state)
On	<input checked="" type="checkbox"/>	The output is activated
Off	<input checked="" type="checkbox"/>	The output is deactivated

The (activated) monitor is deactivated by pressing the **STOP** button. The list of the existing outputs is greyed out automatically (see the Figure below).

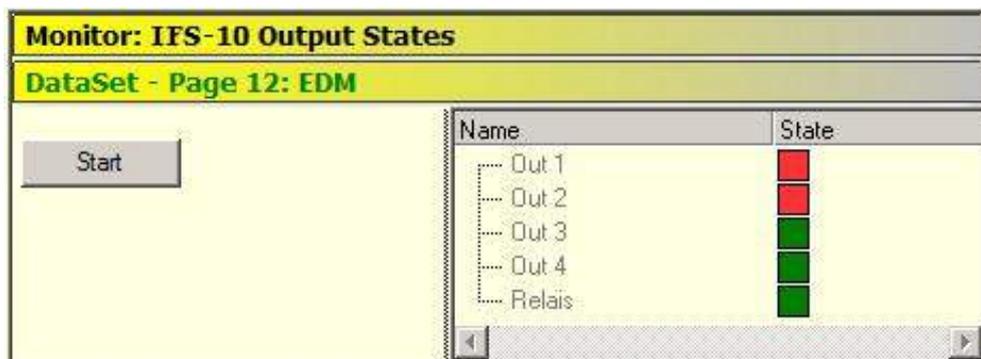


Figure 45 - Monitor / Output States / Disabled Monitor

The use of this monitor is explained in the "User's guide" of the IFS-10 unit.

**2.7 Exception: Lost Connection ...**

If the connection between the OS10.0 safety program and the IFS-10 unit is cut off, the following message appears on the screen:

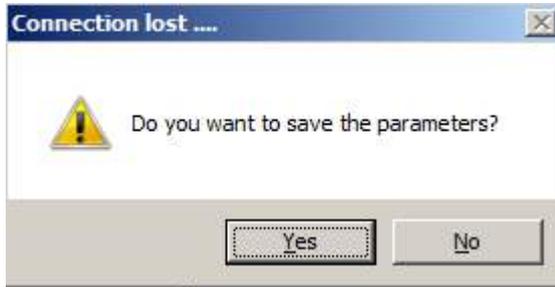


Figure 46 - CONNECTION LOST... warning

Two options are available to the user:

Button	Action
click YES:	All data can be saved to a file by using the File Editor tool.   <b>WARNING</b> This is the last chance to save the data!
click NO:	The data will not be saved.

Table 25 - Options in case of a lost connection



**WARNING**

Whatever the choice, all data will be deleted from the OS10.0.

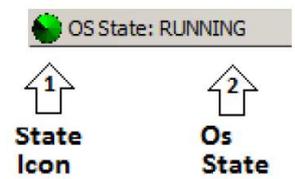


**WARNING**

The OS10.0 software is not able to distinguish between a lost connection and a faulty or broken COM port. Therefore both states will be treated in the same way.

## 2.8 Status Information

The OS10.0 state is shown in the status bar (see the Figure).

 <p>Figure 47 - OS10.0 Status Information</p>	<ul style="list-style-type: none"> <li>• Left: The current OS10.0 state is shown as an icon.</li> <li>• Right: The current OS10.0 state is shown as text.</li> </ul>
--	--

The OS10.0 has five different operating states (**OFFLINE**, **REINIT**, **SEARCHING**, **CONNECTING**, and **RUNNING**). The table below describes the available states.

State	Tool Tip Text	Meaning
 OS State: OFFLINE	"No COM port. Please check your COM port settings ...";	The OS10.0 is not connected to a serial interface or the interface is closed.
 OS State: REINIT	"Re-initialization of the control...";	The OS10.0 reinitializes its individual components.
 OS State: SEARCHING	"No unit is connected. Searching unit ...";	The OS10.0 opens the selected serial interface. Then the OS10.0 searches a device connected to the interface.  For the automatic detection of devices with or without USB interface, the system switches every 10 seconds from the serial configuration "9600,7,even,1" to the configuration "115200,8,none,1" and vice versa.
 OS State: CONNECTING	"Unit found. Downloading unit information ... ";	The OS10.0 has found a device and downloads the device data.
 OS State: RUNNING	"Unit is connected. System is working ...";	The device data download is complete. The OS10.0 is in the normal operating mode.

Table 26 - OS10.0 Status Information

### 3 – Serial Configuration

The configuration tool of the serial interface can be accessed either via the **SHOW COM PORT SETTINGS** menu or by using the **CTRL + K** shortcut keys (see the Figure below).

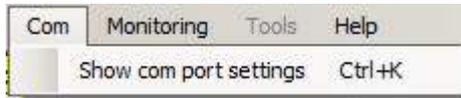


Figure 48 – Serial Port Configuration Menu

Depending on whether an IFS-10, any compatible device or no device is connected, the configuration tool appears in different background designs:

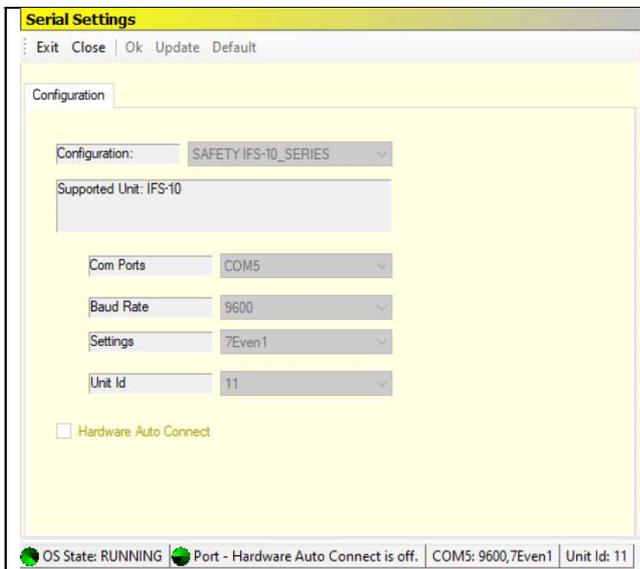


Figure 49 – Serial Configuration of IFS-10

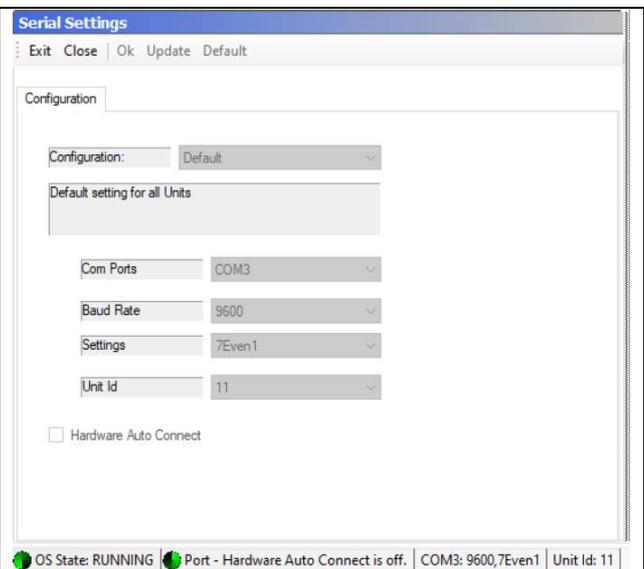


Figure 50 – Serial Configuration for Standard Units

This manual only describes the serial configuration of the IFS-10 unit (Figure on the left).

### 3.1 Overview

Structure of the configuration tool:

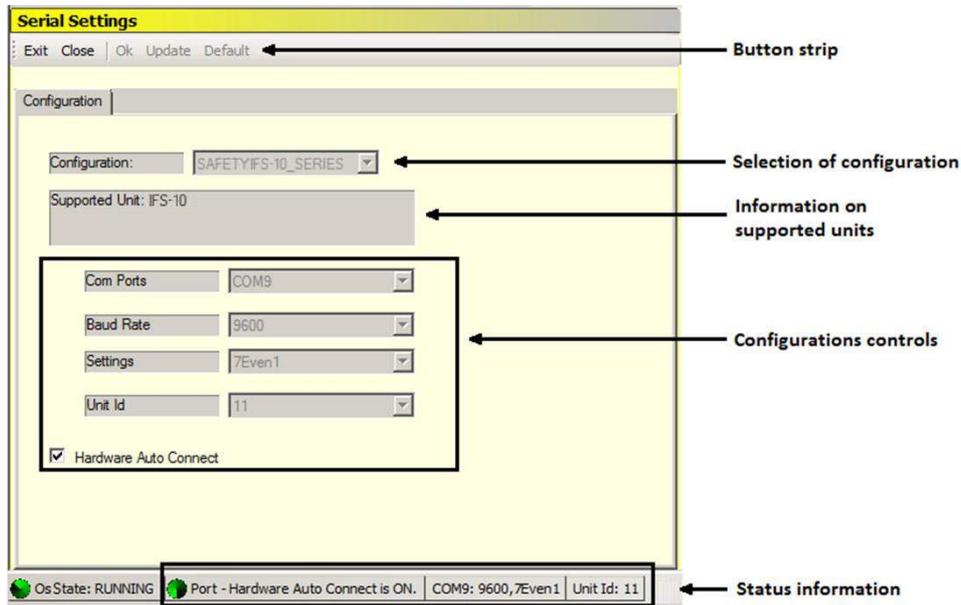


Figure 51 - Overview / Serial Configuration Tool

For general operation a button bar or a control menu are available:

Com	Monitoring	Tools	Help
	Exit com port settings		Ctrl+K
	Close com port		Ctrl+O
	Ok		Ctrl+Shift+O
	Update com port list		Ctrl+Shift+U
	Set default values		Ctrl+Shift+D

Figure 52 - Operation Menu

The configuration selection drop-down box allows to choose between different settings. The selected configuration of the supported units is displayed in the information box under the configuration selection drop-down box.

The four items **Com Ports**, **Baud Rate**, **Settings**, and **Unit Id** are used to select and set the COM port parameters and the unit number.

### 3.2 General operating elements

The basic control elements to exit the configuration window and open or close the COM ports are:

Button	Menu	Description
Exit	Exit com port settings <b>Ctrl+K</b>	Used to exit the configuration window <u>without</u> changes in the settings
Open	Open com port <b>Ctrl+O</b>	Used to open the current COM port with deactivation of the <b>OK</b> , <b>UPDATE</b> , and <b>DEFAULT</b> buttons.
Close	Close com port <b>Ctrl+O</b>	Used to close the current COM port with activation of the <b>OK</b> , <b>UPDATE</b> , and <b>DEFAULT</b> buttons.

Table 27 - General operating elements

Depending on the current COM port state (open or closed), the Serial Settings page can appear in either way:

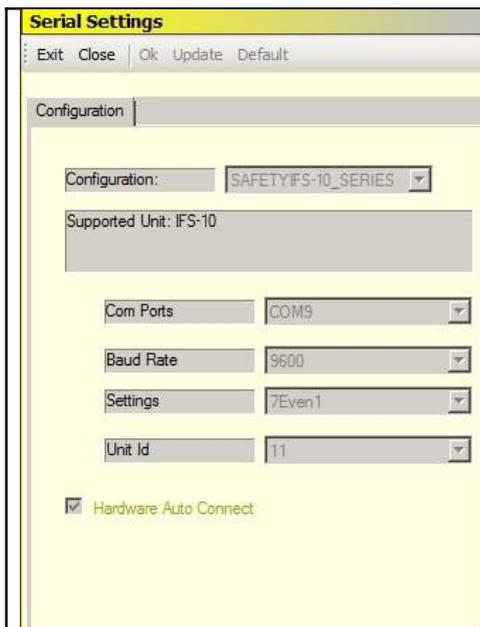


Figure 53 - The COM Port is open

Changes in the settings are **disabled**

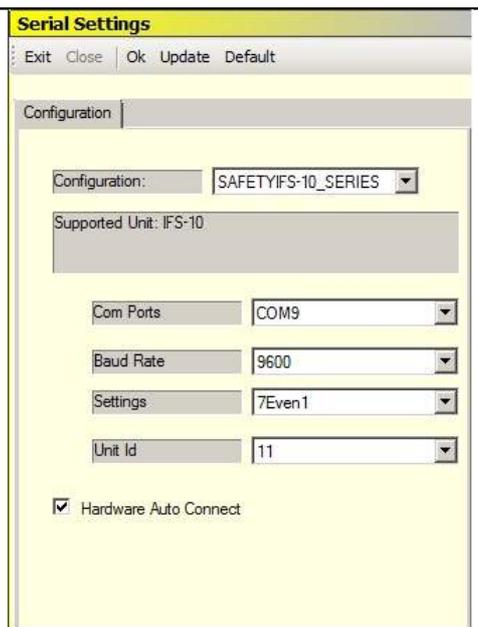


Figure 54 - The COM Port is closed

Changes in the settings are **enabled**



#### WARNING

When a unit is connected, if you close the COM port, the connection is lost. The **CONNECTION LOST...** warning message appears on the screen (see the "2.7 Exception: Lost Connection ..." section on page 60).

When the COM port is closed, additional features are available:

Button	Menu	Description
Ok	Ok      Ctrl+Shift+O	It <b>transfers</b> the entered COM port settings and closes the configuration window automatically. After closing, the OS10.0 immediately tries to connect to the device.
Update	Update com port list      Ctrl+Shift+U	It <b>updates</b> the COM port list. If you install a new COM port in the PC, press the <b>UPDATE</b> button to update the list.
Default	Set default values      Ctrl+Shift+D	It <b>restores</b> the baud rate, the com parameters, and the unit number to the factory settings.

Table 28 - Operating Elements / Additional Features for closed COM port

### 3.3 Configuration selection

Four configurations are currently available:

Name	Device	Baud Rate	Settings
Default	Standard device	9600, 4800, 2400, 1200, 600, 19200, 38400	7Even1, 7Even2, 7Odd1, 7Odd2, 7None1, 7None2, 8Even1, 8Odd1, 8None1, 8None2
LD series	LD210, LD220 LD350, LD355 LD360, LD365	9600, 19200, 38400	7Even1, 7Even2, 7Odd1, 7Odd2, 7None1, 7None2, 8Even1, 8Odd1, 8None1, 8None2
IF series	IF40, IF41, IF42	9600, 19200, 38400	7Even1, 7Even2, 7Odd1, 7Odd2, 7None1, 7None2, 8Even1, 8Odd1, 8None1, 8None2
IFS-10 series	IFS-10	9600, 4800, 2400, 1200, 600, 19200, 38400, 56000, 57200, 76800, 115200	7Even1, 7Even2, 7Odd1, 7Odd2, 7None1, 7None2, 8Even1, 8Odd1, 8None1, 8None2

**Table 29 - Configuration Selection**

If a device connected to the serial port is detected, the corresponding configuration is selected automatically and entered into the corresponding operating elements.



**NOTE**

The IFS-10 unit offers an extended baud rate range.

### 3.4 Operating Elements

The selection of the serial COM port as well as the configuration of the required settings are made by means of the control elements **Com Ports**, **Baud Rate**, and **Settings**. In addition the **Unit Id** item allows to assign a unit number to the connected device. The **Hardware Auto Connect** checkbox allows the automatic detection of the "serial to USB" converters. For more information on this special feature see here below.

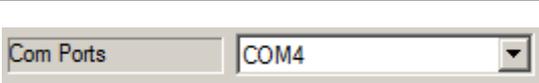
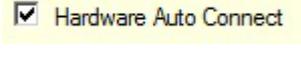
Configuration Tools	Description
	List of all connected and activated COM ports (COM1, COM4, etc.).
	List of all allowed baud rates (transmission speed). Default setting: 9600
	List of all allowed serial settings. Default setting: 7Even1
	List of all available unit numbers (addresses). Default setting: 11
	Auto detection of "serial to USB" converters, see the next section. Default setting: not active

Table 30 - Operating Elements / Configuration Tools

#### 3.4.1 Hardware Auto Connect

When the **Hardware Auto Connect** checkbox is selected, the OS10.0 detects automatically when a new IFS-10 device is connected to or removed from the same USB port. The Com Port number for this (new) device will be the same as the port number of the previously connected device. Then the OS10.0 will immediately connect to this (new) device and will automatically start downloading all necessary data from the device.



#### WARNING

It is compulsory to ALWAYS use the same USB port (even if the connection is via a USB hub).

If the option is not selected, the connection must be done by means of the Configuration tool or has to be initiated via serial interface. The current state will be shown in the status bar (see the next page).

### 3.5 Status Information

All important information about the COM port is shown in the status bar (see the Figure):

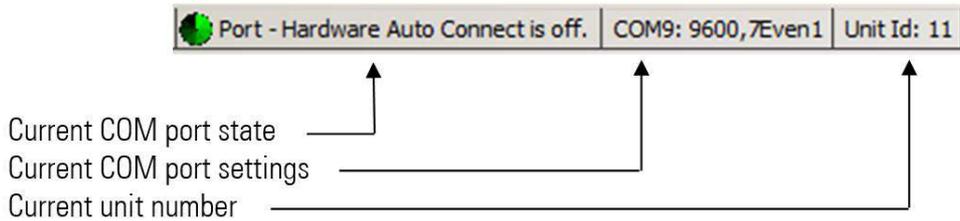


Figure 55 - Status Bar / COM Port Information

#### 3.5.1 Current COM Port Status

The current COM port status shows the operating status of the serial interface and the condition of the **Hardware Auto Connect** feature (see the previous page).

<p><b>Figure 56 - Current COM Port Status</b></p>	<ol style="list-style-type: none"> <li>1. Left: The current state of the serial interface is shown as an icon. The table below explains all different states and their meanings.</li> <li>2. Right: It shows the current state of the Hardware Auto Connect feature (see the table in next page)</li> </ol>
---	---

##### 3.5.1.1 COM Port Status

The serial interface has four different states: **Down**, **Close**, **TryOpen**, and **Working** (see the table below):

Icon	Status	Meaning	Tool Tip Text
	<b>Down</b>	The serial interface does not work. Reason: Either the serial interface has been removed or no interface is connected.	"Device is down..."
	<b>Close</b>	The serial interface is closed.	"Device is closed..."
	<b>TryOpen</b>	The OS10.0 tries to open the selected interface. Remark: This can take up to 3-5 seconds, depending on the "serial to USB" converter.	"Try to open selected device..."
	<b>Working</b>	The interface is working correctly.	"Device is working..."

Table 31 - Status of the Serial Interface



**NOTE**

When you remove the interface, the state of the COM Port is automatically set back to **DOWN**.

**3.5.1.2 Hardware Auto Connect**

Regardless of the COM Port state, the current setting of the **Hardware Auto Connect** option is displayed.

Status display	Meaning
 Port - Hardware Auto Connect is ON.	<b>Hardware Auto Connect</b> is selected, i.e. it is enabled
 Port - Hardware Auto Connect is off.	<b>Hardware Auto Connect</b> is not selected, i.e. it is disabled

Table 32 – Hardware Auto Connect

**3.5.1.3 Current COM Port Settings**

This status bar shows the current COM Port Settings as well as the "**Warning: no com port selected**" and "**Warning: no com port available**" warning messages.

Status Bar Info	Meaning
COM9: 9600,7Even1	The COM Port is connected and in use
Warning: no com port	No COM Port selected, but at least one is connected
Warning: no com port (it flashes)	No COM Port is available

Table 33 – Current COM Port Settings

**3.5.1.4 Current Unit Number**

The last item shows the unit number currently used:

Status Bar Info	Meaning
Unit Id: 11	Current unit number

Table 34 – Current Unit Number

## 4 – Editor Tool for Parameter Files

The **File Editor** is a useful tool which allows to edit and save the parameter files quickly and easily. It can be used as a "stand alone" editor (i.e. without a connected unit) or in combination with a unit which is connected through the COM port, according to needs.

The editor can be used:

1. as a stand alone editor
  - to load and save the parameter data sets
  - to edit the parameter data sets
  - to prevent changes to the parameter data sets ("Write protected")
  - to print parameter data sets
2. in combination with a connected device
  - to save device parameter data sets to a file
  - to select and freely switch between the parameters in the parameter list

The editor is displayed in the left part of the screen. The right part shows an OS10.0 Safety window:

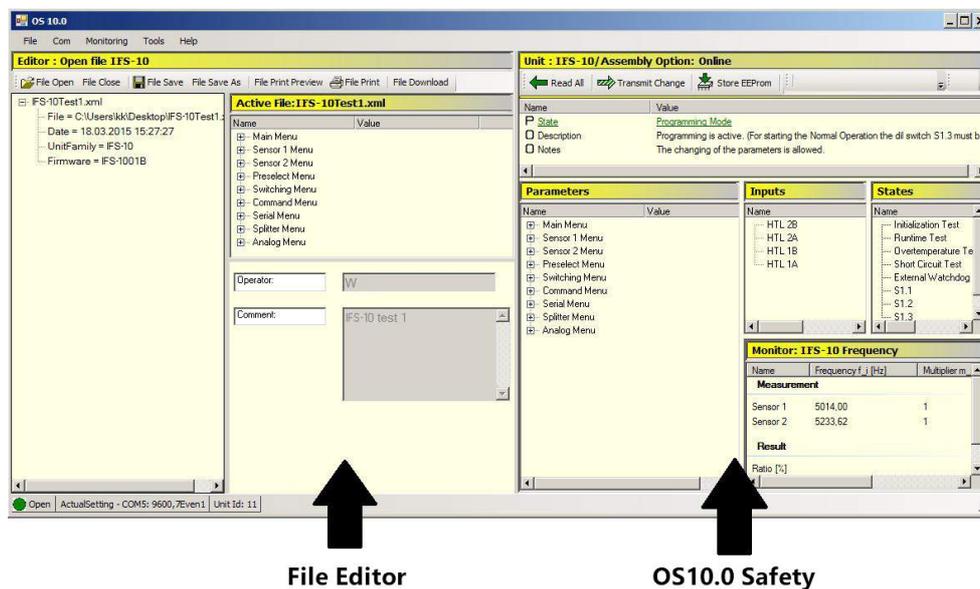


Figure 57 – File Editor

#### 4.1 Opening the Editor

<b>Stand alone</b>	To start the program as a "stand alone" editor and edit an existing parameter data file, the menu <b>File</b> → <b>Open Editor</b> is used. An <b>Open file</b> dialog box appears and the desired parameter file can be selected.
<b>Combined</b>	In combination with a connected unit, the editor is used to backup the current parameter data sets. Two cases are possible: <ul style="list-style-type: none"> <li>• a parameter data set has to be saved to a file. The backup starts by pressing the <b>UNIT SAVE AS</b> button;</li> <li>• the serial connection to the device is cut off (see the "2.7 Exception: Lost Connection ..." section on page 60).</li> </ul>

Table 35 - Opening the Editor

## 4.2 Operation of the Editor

For the general operation of the editor a **button** or **menu bar** and a **pop-up menu** are available (see also the Figure below in the page).

Information on the currently loaded file can be found in the **File information**.

The currently loaded parameter data set can be modified in the "**List of parameters**" window.

The "**Input field**" area is used to save the current parameter data set to a file. The saving can be done with or without "**Write Protected**" option.



### WARNING

A parameter data set that is marked with "Write Protected" (by using the file editor):

- CANNOT be changed ("read only"),
- CANNOT be saved to an existing file ("Write protection").

The following three pictures show the operation elements:

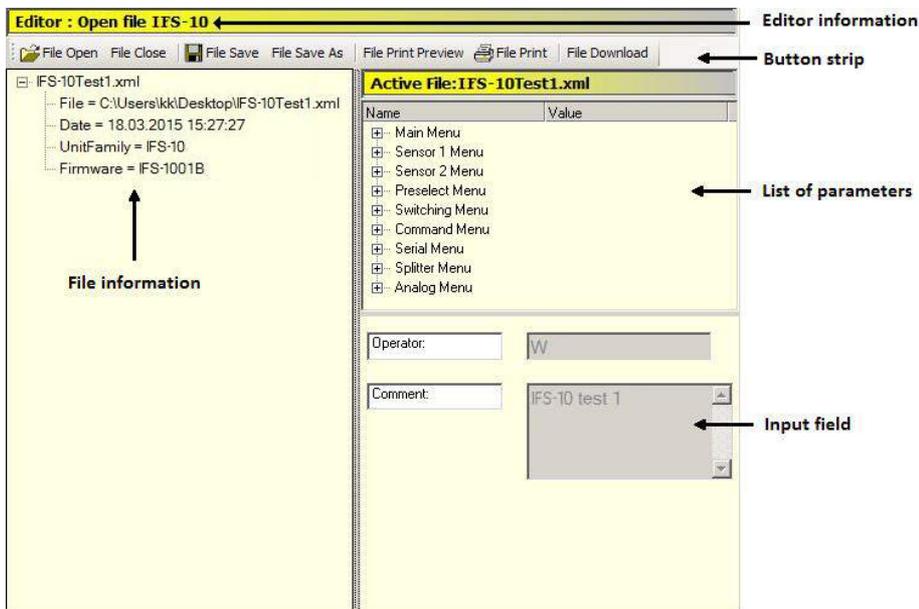


Figure 58 - Editor Components with a loaded Parameter File

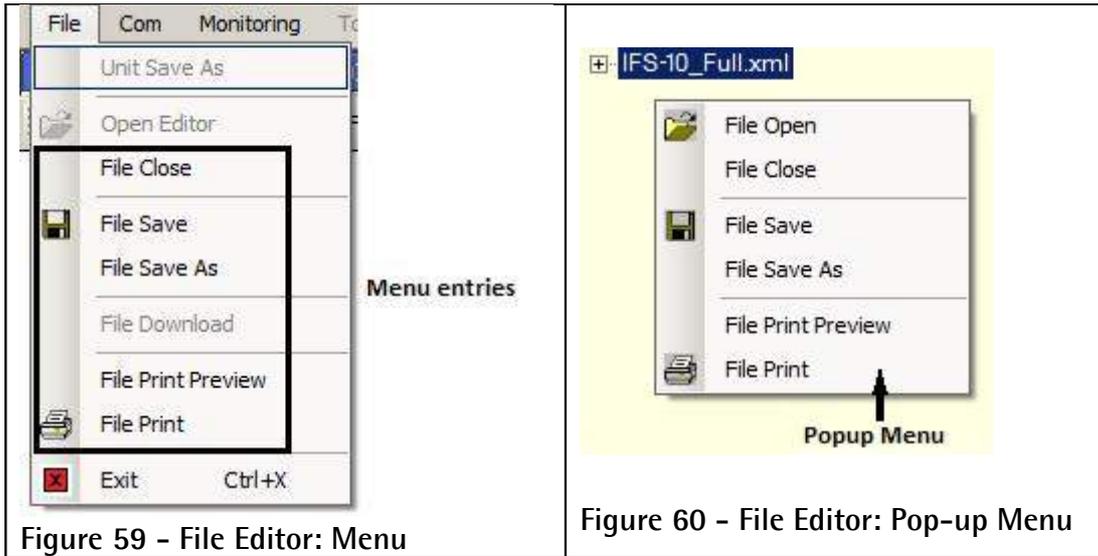


Figure 59 - File Editor: Menu

Figure 60 - File Editor: Pop-up Menu

Operating elements of the editor

Function	Description	Additional Notes
<b>File Open</b>	It opens a new data file. The software is able to process the former <b>.par</b> format as well as the newer <b>.xml</b> format. The selection is made via file extension.	It overwrites the file currently opened in the editor.
<b>File Close</b>	It closes both the file and the editor.	<b>No saving</b> of the current data file. The current data file is deleted automatically from the file editor.
<b>File Save</b>	It saves the current data file in the corresponding position.	<b>Restriction:</b> if "Write Protected" is selected: it is not available and not visible.
<b>File Save As</b>	It saves the current file using a new file name, in either the current or a new target directory.	The user name entry, the "Write Protected" setting, and a comment about the file can be added here. <b>Restriction:</b> if "Write Protected" is selected, in this case you are not allowed to overwrite existing files.
<b>File Print Preview</b>	It creates a preview of the file currently opened.	Only usable if a printer is installed!
<b>Print</b>	The open file is printed out.	Only usable if a printer is

		installed!
<b>File Download</b>	It copies the current file data into the OS10.0 window in order to transmit it to the connected unit.	Only usable if a target unit is connected. The editor file has to be compatible with the parameter data of the target unit.

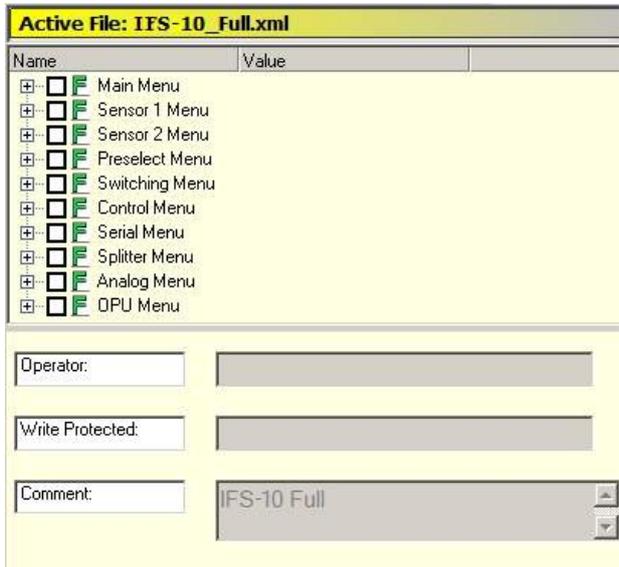
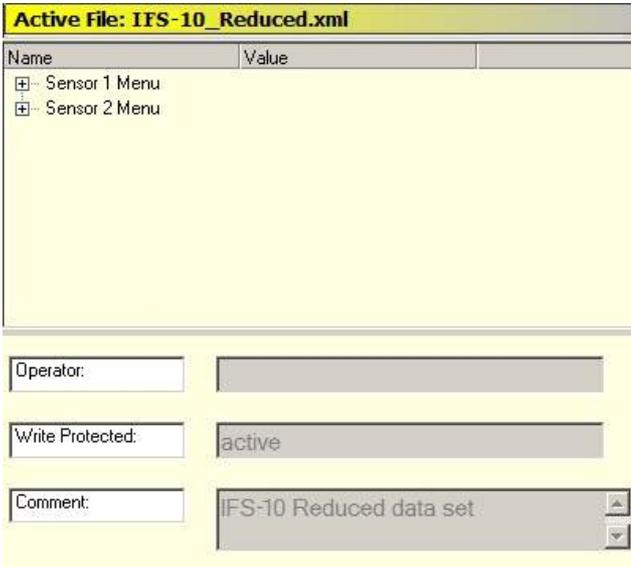
Table 36 - File Editor: Operating elements

#### 4.2.1 Loading a new parameter data set from a file

A new parameter data set can be loaded from a file using the **File Open** command.

After pressing the **File Open** command, a choice menu opens automatically and the desired parameter file can be selected and loaded.

The editor automatically recognizes whether a data set with or without "Write Protected" is available (see the examples below).

<p>Data set without "Write Protected":</p>  <p><b>Figure 61 - File editor: Example- parameter data set without "Write Protected"</b></p>	<p>Data set with "Write Protected":</p>  <p><b>Figure 62 - File editor: Example- parameter data set with "Write Protected"</b></p>
---	--

If the "Write Protected" function is active, all blocked features are disabled.

### 4.2.2 Edit parameter data sets

The parameter values can be edited and the menus/parameters can be selected in the "List of parameter" editing window.

The selection of the displayed menus/parameters and parameter data sets with "Write Protected" can be suitably adjusted for the parameter list of OS10.0.

#### Editing the parameter data sets

The editing of the parameter values is the same as the editing of the parameter list of the OS10.0 window (see also the "2.3.2 Editing the Parameter Values" section on page 19). However, the parameters that are changed are not marked.

#### Selecting the displayed parameter values or menus

In the editing window, two symbols are used (see the table below).

Symbol	Description
<input type="checkbox"/> F	Free switched: the menu or the parameter is displayed.
<input checked="" type="checkbox"/> B	Blocked: the menu or parameter is blocked and not displayed.

Table 37 – File editor: Identification – Free switched / Blocked

The selection "Free switched <-> Blocked" is done by selecting the check box next to the symbol.

A menu entry changes all subordinated parameter entries.

#### Saving a parameter data set

Two methods are available to save a parameters data set.

##### 1. File Save

By means of the "File Save" command the current parameter set is automatically saved to the corresponding data file. The file name and location are shown in the file information.

- A change in the file name or location is not possible.
- A change in the optional parameters "Operator", "Write Protected", and "Comment" is not possible.
- All entries in this file will be overwritten.
- "File Save" can be performed only for parameter data sets without "Write Protected".

##### 2. Files Save As

By means of the "File Save As" command the current parameter set can be saved to any data file.

After pressing the "File Save As" command one of the following parameter change windows opens.

If a file without "Write Protected" or no file is loaded in the editor, the change window without "Write Protected" opens.

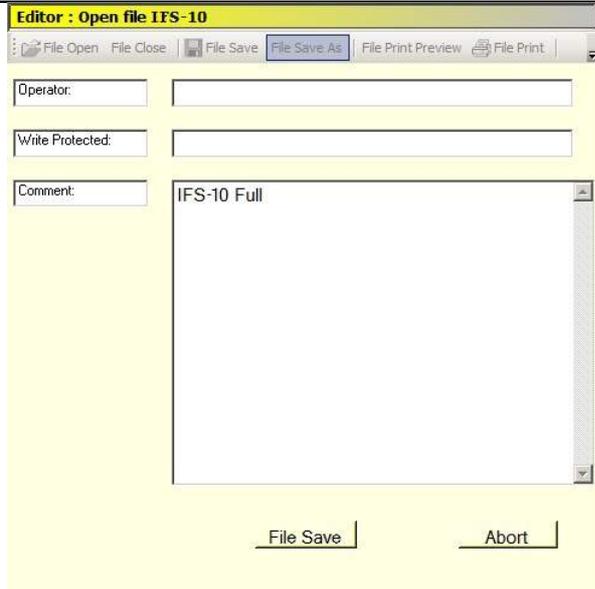


Figure 63 - File Editor: Change window for optional parameters (without "Write Protected")

If a file with "Write Protected" is loaded in the editor, the change window with "Write Protected" opens.



Figure 64 - File Editor: Change window for optional parameters (with "Write Protected")

**Please note the following remark**

By pressing the **FILE SAVE** button you will open a file dialog box. The saving operation is the same as under Windows operating system. Only after the store operation is carried out, a superior write protection is enabled and the file editor changes according to the new condition.

Optional parameters	Description				
Operator	Name of the operator: You are always allowed to change this parameter.				
Write Protected	<p><b>Indicator for write protection:</b> A change in this parameter is subjected to the following limitations:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;">                     A set and saved "Write Protected" cannot be changed via file editor.                 </div> <p>Setting of "Write Protected":</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Text</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>"active"</td> <td>write protection <b>enabled</b></td> </tr> </tbody> </table>	Text	Meaning	"active"	write protection <b>enabled</b>
	Text	Meaning			
	"active"	write protection <b>enabled</b>			

	all other texts	write protection <b>disabled</b>
	The write protection is <b>enabled</b> as soon as the <u>saving operation is accomplished</u> .	
<b>Comment</b>	<u>Any comment</u> You are always allowed to change this parameter.	

**Table 38 - File Editor: Optional parameters**

- For parameter data sets without "Write Protected" the overwriting of existing files is allowed.
- For parameter data sets with "Write Protected" the overwriting of existing files is not allowed and blocked automatically. The parameter data sets must be saved to a new file.
- All entries in the file are created as new or overwritten.

By pressing the **ABORT** button, the operation can be aborted at any time without saving.

### Printing parameter data sets

Two ways are available in order to print the parameter sets.

#### File Print Preview (Print Preview):

A print preview window opens after pressing the **FILE PRINT PREVIEW** button. In this window, the print can be checked visually. A changing of the printing layout and features is not possible.

#### File Print (Immediate printing)

After pressing the **FILE PRINT** button the "Windows standard" printer selection window opens. In addition to the selection of the printer a printer-specific modification is also possible.

### 4.3 Data Exchange between File Editor and OS10.0 Window

#### 4.3.1 File Editor → OS10.0 Window

In order to ensure the compatibility between the editor and the loaded parameter set of a connected target unit, the following requirements must be fulfilled:

Compatibility conditions of the file downloads	
1. Unit family	The first five characters of the unit family and the loaded parameter set must be the same. The characters are not case-sensitive.
2. Firmware	<p>a.) <b>Standard Firmware:</b> The first seven characters of the firmware and the loaded parameter set must be the same. The characters are not case-sensitive.</p> <p>b.) <b>Special Firmware:</b> All characters of the firmware, editor file, and loaded parameter set must be the same.</p>

If the compatibility requirements are not fulfilled, the **FILE DOWNLOAD** button is greyed out automatically (see the example below). In the Figure below the first 7 characters do not match.

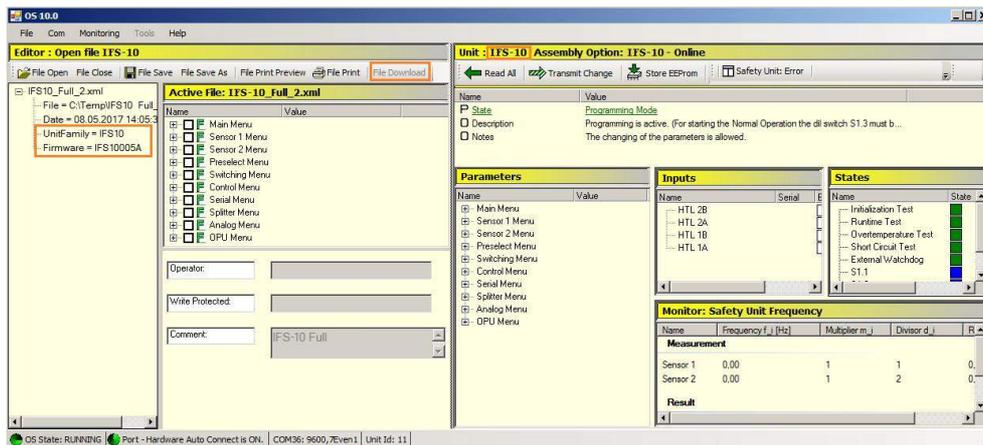


Figure 65 - Example "IFS-10 unit is not in the Programming Mode"

If the compatibility conditions are met, the following sequence is executed after pressing the **FILE DOWNLOAD** button:

- for data sets without "Write Protected" only "free switched" parameters or **menus** are transmitted to the OS10.0 window. Only these "free switched" parameters will be overwritten afterwards and automatically highlighted in **red** in the OS10.0 window. Blocked parameters are not displayed (see the Figure below).

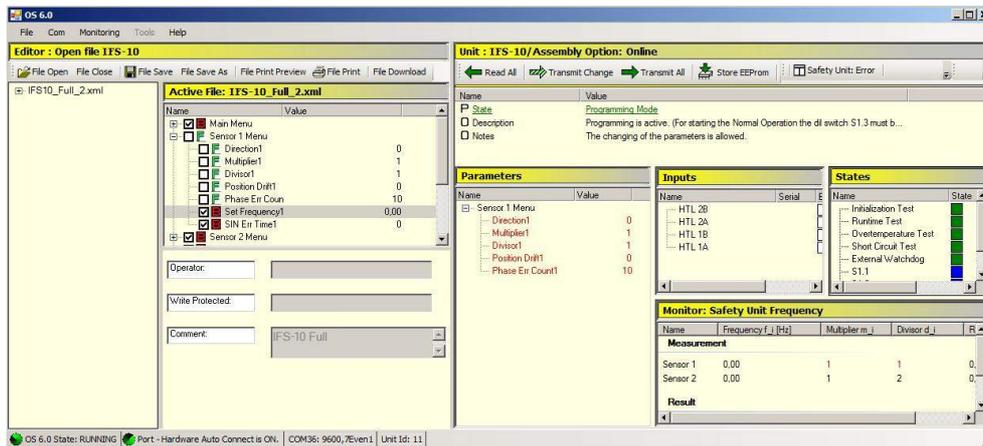


Figure 66 – Parameters transmission via FILE DOWNLOAD

- For data sets with "Write Protected" only the visible parameters or **menus** are transmitted to the OS10.0 window. Only these visible parameters will be overwritten afterwards and automatically highlighted in **red** in the OS10.0 window. Blocked parameters are not displayed (see the Figure below).

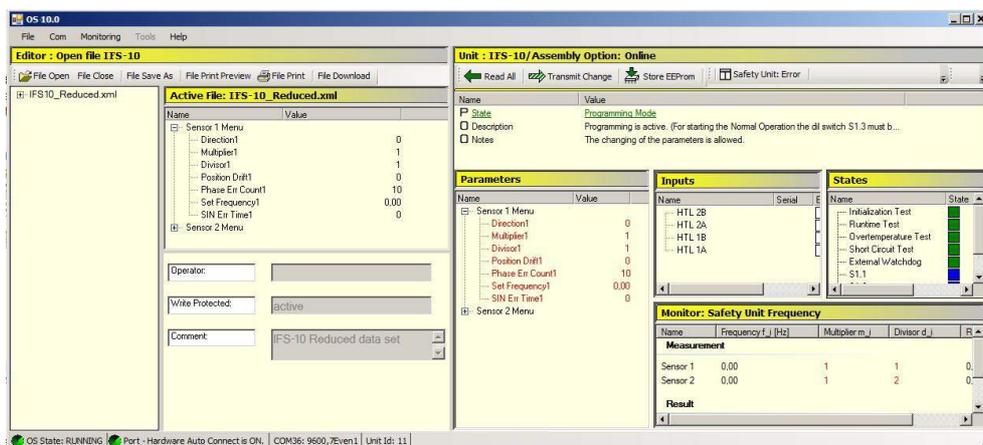


Figure 67 – Data transfer for data records with "Write Protected"

Now **all the new parameters** can be transmitted to the target unit.

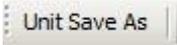
4.3.2 OS10.0 Window → File Editor



**NOTE**

All parameters of the OS10.0 window (also the blocked parameters) will be added to the file editor.

There are two possibilities to transfer data from the OS10.0 window to the editor:

Active possibility	Passive possibility
Press the <b>UNIT SAVE AS</b> button	A <b>Connection lost ...</b> condition is detected
<div style="text-align: center;">  </div>	If the connection between the OS10.0 surface and the target unit is lost, the <b>Connection lost ...</b> exception is activated automatically.  The following pop-up warning message appears:  <div style="text-align: center;">  </div>
After pressing the <b>UNIT SAVE AS</b> button...	After pressing the <b>YES</b> button...
<p style="text-align: center;">... the editor input field opens left beside the OS10.0 field.</p>	

If a file without "Write Protected" or no file is open in the editor, the following window will appear:

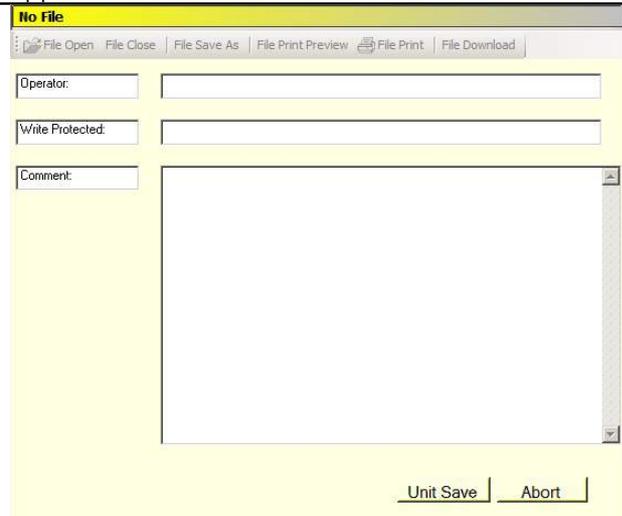


Figure 69 - File Editor: Changing window (without "Write Protected")

If a file with "Write Protected" is open in the editor, the following window will appear:

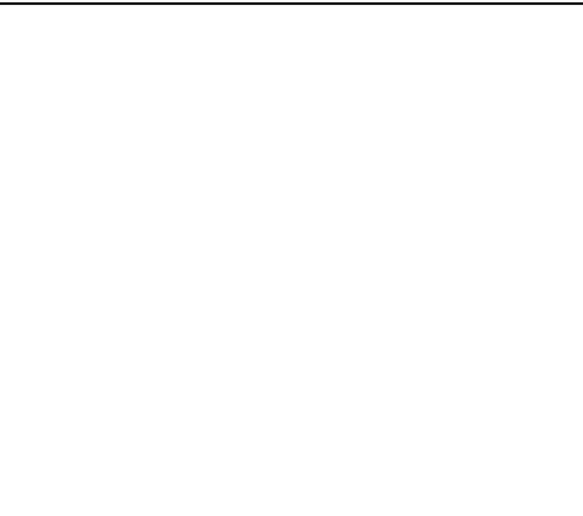


Figure 70 - File Editor: Changing window (with "Write Protected")

The procedure for saving the parameters is described in the "Saving a parameter data set" section on page 75.

## 5 - Tools menu

**NOTE**

The tool menu is used to provide additional (external) tools and is only available in special versions of the OS10.0.

## 6 – Help menu

The Help menu summarizes all help or update options for OS10.0.

The Help main menu is divided into two areas: an upper area with the three commands **Show help**, **Web Page**, and **Web Page For Documents**; and a bottom area in which all the updates of the OS10.0 are summarized. The upper menus are shown just below. Each update procedure is explained in the next sections.

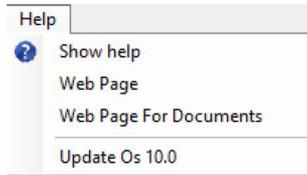


Figure 71 – Help menu, overview



**NOTE**

The following note applies to all update procedures: regardless of the update method, for security reasons the OS10.0 will be closed and restarted after the execution of the update.

When you press the **Show Help** command the current documentation directory will open automatically.

⌵ > Program Files (x86) > Os10.0 > Docs

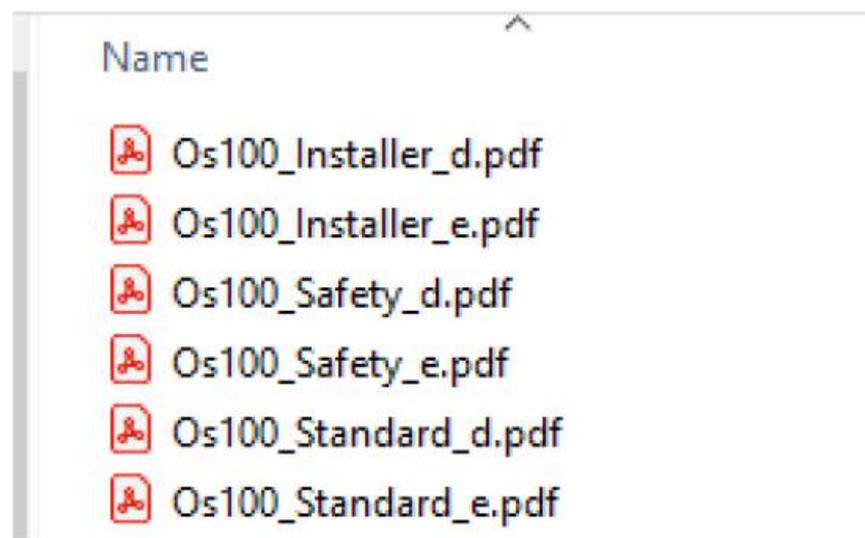


Figure 72 – Current Documentation Directory

The number of manuals displayed in the list is variable and depends on the existing documents. Double-click the icon of the desired manual to open it.

**NOTE**

To open and view the PDF document a suitable PDF reader must be installed in the PC.

Press the **Web Page** command to open Lika's web page.

Press the **Web Page For Documents** command to automatically open Lika's web page with additional documents.

## 6.1 Updating the OS10.0

Press the **Update OS10.0** command to start the update of the OS10.0. The update process consists of the steps described hereafter.

### 6.1.1 Automatic update check

First of all, the update program checks whether a new update is available.

Two different cases can occur:

Case 1: no update is available

Case 2: a new update is available

#### Case 1: no update is available

Press the **OK** button to close the window and return to the OS10.0. Check later whether an update is available.

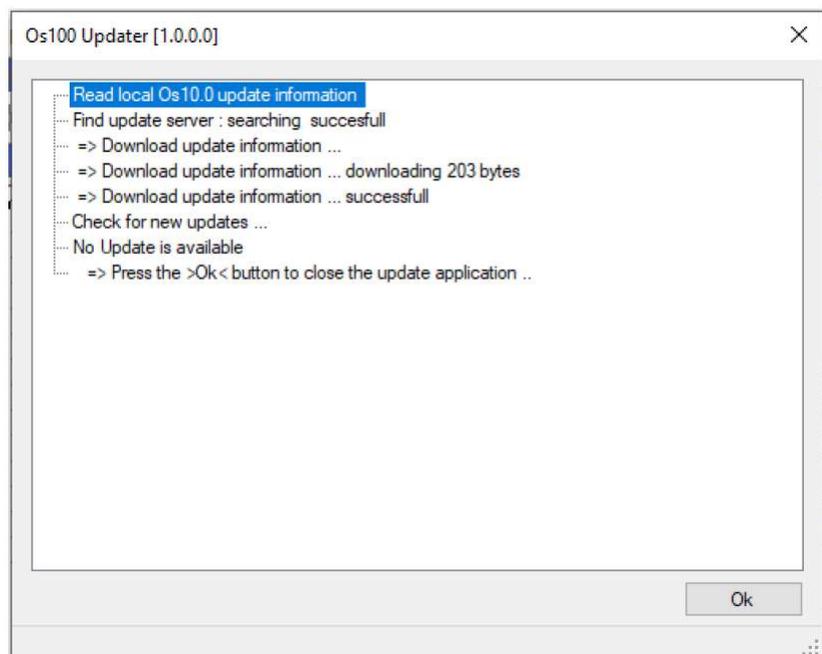


Figure 73 - Update OS10.0 - No Update is available

Case 2: a new update is available

The update can be either installed or aborted, according to needs.

Press the **NO** button to close the update program and start the OS10.0 automatically.

The update can be started later again.

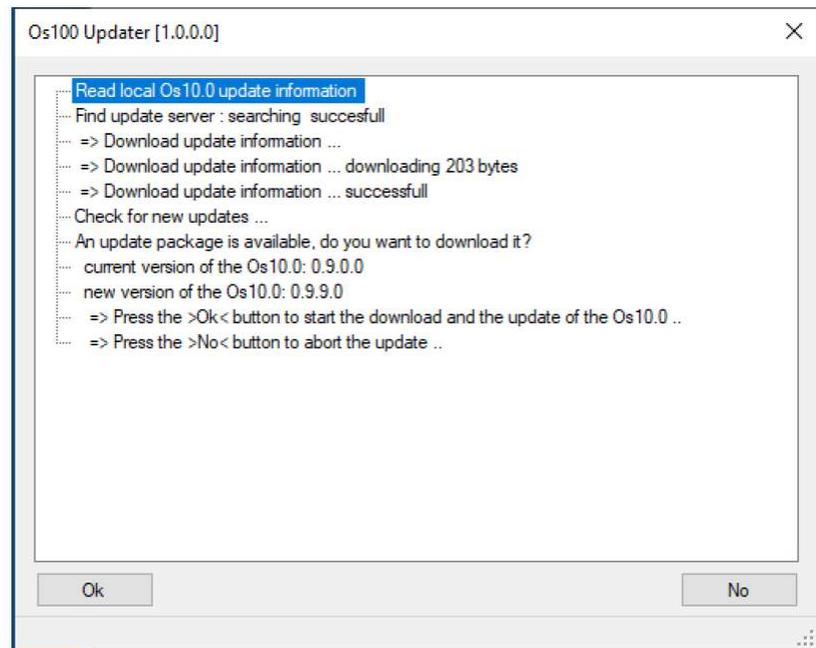


Figure 74 - Update OS10.0 - Update available

Press the **OK** button to start the download and update the program to the new version.

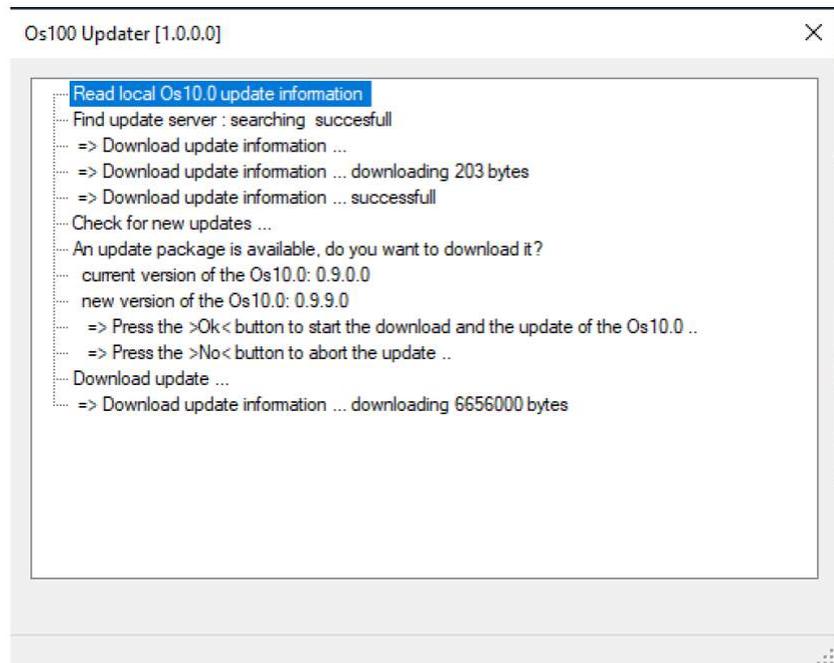


Figure 75 - Update OS10.0 - Download Update

### 6.1.2 Updating the OS10.0 to a new version

The update process and the installation process are exactly the same.  
Please find complete information about the installation process in the "MAN OS10.0 Installer E x.x.pdf" document.

## 7 – Appendix

### 7.1 Literature

[1] User's guide of OS10.0

[2] User's guide of the specific device, download it from [www.lika.biz](http://www.lika.biz)

[3] System requirements for .NET Framework:

<https://docs.microsoft.com/en-us/dotnet/framework/get-started/system-requirements?redirectedfrom=MSDN>

### 7.2 Special cases

#	Special cases	Notice
1	Parameter <b>UnitId</b>	Only specific values are allowed for this parameter. Detailed information can be found in the "User's guide" of the device.

### 7.3 System requirements

Operating system	Windows 8.1, Windows 10
Hardware	<ul style="list-style-type: none"> <li>• 1 GHz processor or higher, 32 Bit (x86) or 64 Bit (x64)</li> <li>• 2 GB RAM (32 or 64 Bit)</li> <li>• hard disc free available space:               <ul style="list-style-type: none"> <li>16 GB for 32 Bit</li> <li>20 GB for 64 Bit</li> </ul> </li> <li>• DirectX 9 graphic engine with WDDM 1.0 driver or higher</li> <li>• Serial device (standard COM port or RS-232 via USB adapter)</li> </ul>
Software	<ul style="list-style-type: none"> <li>• .NET Framework 4.6.1 from Microsoft</li> </ul>

Document release	Release date	Description	Version	Software
1.0	24.03.2022	First issue	01a_oi	1.1.8.6



Dispose separately

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