Smart encoders & actuators

User's guide

IFS-10-PM programming & display unit

- Programming and display unit for IFS-10 safety monitor
- Touchscreen with intuitive navigation
- 1.54" OLED display (128 x 64 pixel)
- Simple parametrization of IFS-10 monitors
- Allows to edit, save, and load the parameters

Suitable for the following models:

- IFS-10-PM

General Contents

General contents

Subject Index

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 **WARNING**, 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 **NOTE**, 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 **EXAMPLE** when instructions for setting parameters are accompanied by examples to clarify the explanation.

Preliminary information

This guide is designed to describe the technical characteristics, installation, and use of the **IFS-10-PM programming and display unit** for IFS-10 safety units. IFS-10-PM programming and display unit is supplied as an optional.

The optional IFS-10-PM unit is designed to be paired with all safety-relevant devices of the IFS-10 series. It is able to perform a double task: it can be used either to programme the safety unit or to be a display of the safety unit. Thanks to its intuitive operation, the IFS-10-PM display is quick, easy, and flexible to handle.

The unit can be used via PC or connected directly to the safety unit. The IFS-10-PM offers a wide range of functions and features (depending on the type of safety device and the DIL switch settings).
Among the main features are:

- touchscreen with intuitive navigation;
- 1.54" OLED display (128 x 64 pixels);
- simple parametrization of the safety unit;
- editing, saving, and loading of parameter sets;
- dual channel frequency indicator;
- individual scalable process and speed monitor.

Applications with the safety unit
Plugged into a safety device the function of the IFS-10-PM depends on the settings of the DIL switch available in the safety device. There are three different device modes.

- **Normal operation** (see the "5.3 "NORMAL OPERATION" mode" section on page 16)
  - Two-channel frequency display
  - Individually scalable display for e.g. speeds, production rates, etc.
  - Visual error message

- **Factory settings** (see the "5.4 "FACTORY SETTINGS" mode" section on page 17)
  - No function

- **Programming mode** (see the "5.5 "PROGRAMMING" mode" section on page 18)
  - Editing and saving the IFS-10 parameters
  - Editing and saving the safety device parameters
  - Copying the safety device parameters

1 - Safety summary

Safety

- Always adhere to the professional safety and accident prevention regulations applicable to your country during device installation and operation;
- installation and maintenance operations have to be carried out by qualified personnel only, with power supply disconnected and stationary mechanical parts;
- device must be used only for the purpose appropriate to its design: use for purposes other than those for which it has been designed could result in serious personal and/or the environment damage;
- high current, voltage and moving mechanical parts can cause serious or fatal injury;
- warning ! Do not use in explosive or flammable areas;
- failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the equipment;
- Lika Electronic assumes no liability for the customer's failure to comply with these requirements.

Electrical safety

- Turn off the power supply before connecting the device;
- connect according to the explanation in the "4 - Electrical connections" section on page 14;
- in compliance with the 2014/30/EU norm on electromagnetic compatibility, following precautions must be taken:

  - before handling and installing, discharge electrical charge from your body and tools which may come in touch with the device;
  - power supply must be stabilized without noise, install EMC filters on device power supply if needed;
  - always use shielded cables (twisted pair cables whenever possible);
  - avoid cables runs longer than necessary;
  - avoid running the signal cable near high voltage power cables;
  - mount the device as far as possible from any capacitive or inductive noise source, shield the device from noise source if needed;
  - to guarantee a correct working of the device, avoid using strong magnets on or near by the unit;
  - minimize noise by connecting the shield and/or the frame to ground. Make sure that ground is not affected by noise. The connection point to ground can be situated both on the device side and on user's side. The best solution to minimize the interference must be carried out by the user. Provide the ground connection as close as possible to the unit.

Mechanical safety

- Install the device following strictly the information in the "3 – Technical features" section on page 11;
- mechanical installation has to be carried out with power supply disconnected and stationary mechanical parts;
- do not disassemble the unit;
- do not tool the unit;
- delicate electronic equipment: handle with care;
- do not subject the device to knocks or shocks;
- respect the environmental characteristics declared by the manufacturer.

2 - Identification

The device can be identified through the **order code** and the **serial number** printed on the label applied to its enclosure. Information is listed in the delivery document too. Please always quote the order code and the serial number when reaching Lika Electronic for purchasing spare parts or needing assistance. For any information on the technical characteristics of the product refer to the technical catalogue.

Warning: devices having order code ending with "/Sxxx" may have mechanical and electrical characteristics different from standard and be supplied with additional documentation for special connections (Technical info).

3 – Technical features

WARNING
Installation and maintenance operations have to be carried out by qualified personnel only, with power supply disconnected and mechanical parts compulsorily in stop.

3.1 Overall dimensions

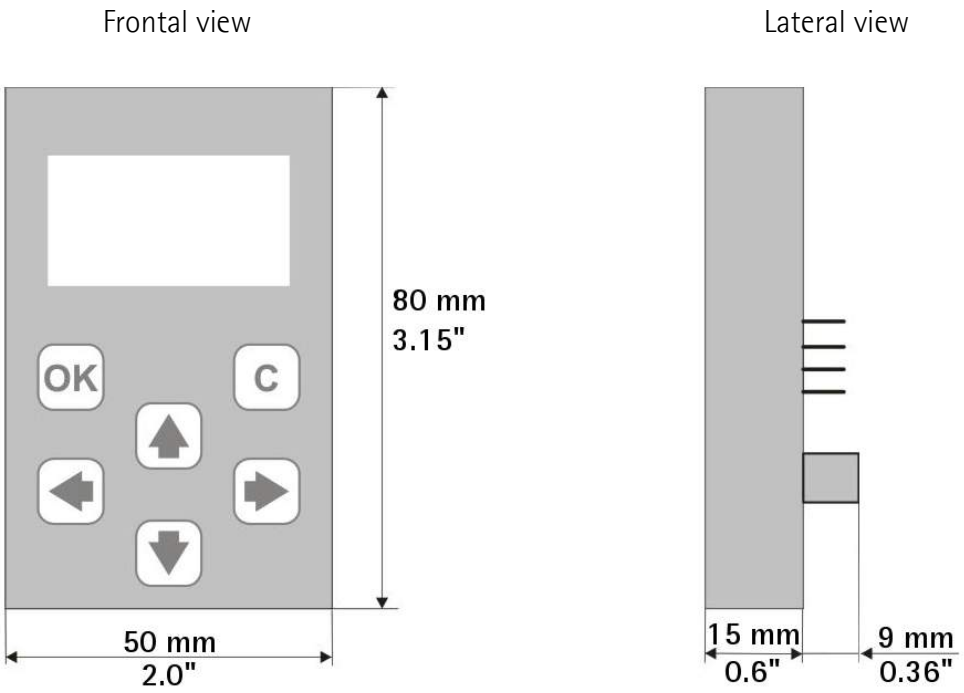


Figure 1

3.2 Installation

The device is allowed to be installed and operated only within the permissible operating temperature range (-20°C +55°C / -4°F +131°F). Please ensure an adequate ventilation and avoid all direct contact between the device and hot or aggressive gases and liquids.
Before installation or maintenance, the unit must be disconnected from all voltage sources. Furthermore it must be ensured that no danger can arise in case of contact with the disconnected voltage sources.
Devices which are supplied by AC voltages must be connected only by means of switches or circuit breakers with low voltage circuit. The switch or circuit breaker must be installed as near as possible to the device and further indicated as separator.

Incoming as well as outgoing wires and wires for extra low voltages (ELV) must be separated from dangerous electrical cables (SELV circuits) by using double or increased insulation.
All selected wires and insulations must comply with the provided voltage and temperature ranges. Furthermore all country- and application-specific standards which are relevant for structure, form, and quality of the wires, must be ensured. Indications about the permissible wire cross-sections for wiring are described in the "9 - Technical Specifications" section on page 39.

Before starting the unit for the first time it must be ensured that all connections and wires are firmly plugged in and secured to the screw terminals. All terminals (including unused terminals) must be fastened by turning the relevant screws clockwise up to the end position.

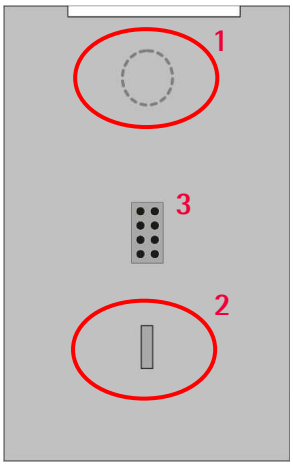
Overvoltages at the connections must be limited to values in accordance to the overvoltage category II.

For placement, wiring, environmental conditions as well as shielding and earthing/grounding of the supply lines you must comply with the general standards stated for the industrial automation industry and the specific shielding instructions provided by the manufacturer.

3.3 Mounting the display unit on the IFS-10 safety unit

The mounting of the IFS-10-PM programming and display unit is performed by simply plugging it into the IFS-10 safety device. Via the 8-pin connector **3** both units are electrically connected. A mechanical polarity protection **2** ensures that the device cannot be plugged incorrectly. Neodymium magnet **1** ensures a safe mechanical connection.

IFS-10-PM rear view



1 Neodymium Magnet
Neodymium Magnet for safety mounting

2 Polarity protection
Mechanical polarity protection

3 8-pin male connector
For electrical connection (see the "4.1 8-pin male connector" section on page 14).

Figure 2

3.4 Cleaning, maintenance, and service notes

WARNING
Switch the power off before cleaning the front screen.

To clean the front side and the display of the unit please always use a soft, clean, slightly damp (not wet!) cloth such as a microfibre or cotton cloth to remove the dust from the display. Gently wipe the surface without exerting any pressure. Should it be necessary to use a liquid to remove persistent stains or fingerprints, lightly dampen the cloth with water.
For the rear side no cleaning is necessary. For an unscheduled, individual cleaning of the rear side the maintenance technicians or installation operators are self-responsible.
Do not use abrasive fabrics or materials such as paper towels even though they are soft as they scratch the display.
Do not use chemical agents and products that are generally used for cleaning, methylated spirit or ammonia as they could damage the screen surface and make marks.
During normal operation no maintenance is necessary. In case of unexpected problems, failures or malfunctions the device must be shipped back to the manufacturer for any checking, adjustment or repair. Unauthorized opening and repair operations can have negative effects or failures to the protection measures of the unit.

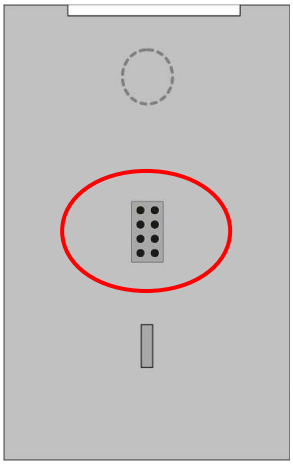
WARNING
Solvents and abrasive materials could damage the display. Do not rub or brush the surface. Do not use aggressive and/or flammable products to clean the screen.

4 - Electrical connections

WARNING
Power supply must be turned off before performing any electrical connection!

4.1 8-pin male connector

IFS-10-PM rear view



8-pin male connector

The 8-pin male connector electrically connects the IFS-10-PM to the safety unit. For information on the mechanical installation refer also to the "3.3 Mounting the display unit on the IFS-10 safety unit" section on page 12.

After initialization, parameters can be loaded, edited and saved via the key panel (see the "5 - Parametrization of the safety unit" section on page 15).

Figure 3

WARNING
If the seal is damaged the warranty expires.

5 - Parametrization of the safety unit

5.1 Using the keypad

The IFS-10-PM is operated by using the six buttons available in the touchscreen key panel.

The **OK** button is used to confirm the entries.

The **C** ("Cancel" or "ESC") button is used to exit the current menu or move back to the previous menu level.

The **ARROW UP** button is used to either enter the next menu item or increase the numeric value (the number flashes).

The **ARROW DOWN** button is used to either enter the previous menu item or decrease the numeric value (the number flashes).

The **ARROW LEFT** button either switches to the previous menu item or selects the previous position in the value to be edited (the number flashes).

The **ARROW RIGHT** button either switches to the next menu item or selects the next position in the value to be edited (the number flashes).

WARNING
For touchscreen operation, a connection between the IFS-10-PM and the safety unit is compulsorily required.

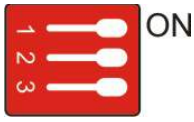
5.2 General information

By using the arrow buttons, the **unit mode** of the safety device can be selected.

NOTE
For any information on setting the 3-position DIL switch, please refer to the "User's manual" of the safety unit.

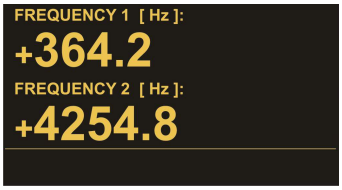
5.3 "NORMAL OPERATION" mode

The DIL switch positions of the safety unit are:



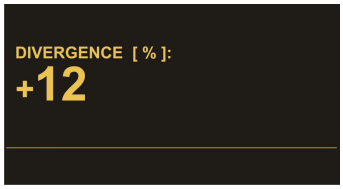
By using the arrow buttons, this mode allows to enter the pages (display) of the IFS-10-PM as follows:

Display 1: Frequencies (Hz)



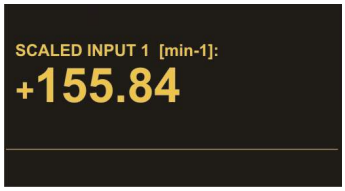
Both input frequencies of sensor 1 and sensor 2 are displayed with one decimal digit (see the **000 Operational Mode** parameter in the Main menu of the safety unit "User's manual").
The values are independent from the safety unit scaling settings.

Display 2: Divergence (%)



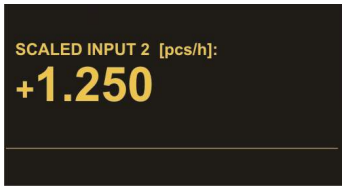
It shows the divergence of both input frequencies expressed in percentage. To set the reference frequency, please refer to the **007 Div. Calculation** parameter in the Main menu of the safety unit.
The value depends on the scaling and divergence parameter settings of the safety unit.

Display 3: Scaled Input 1



In this mode, the input frequency of the sensor 1 is converted according to the parameters set in the OPU menu of the safety unit and then shown on the display. Refer also to the "6 - IFS-10-PM parameters list" section on page 27 *.

Display 4: Scaled Input 2



In this mode, the input frequency of the sensor 2 is converted according to the parameters set in the OPU menu of the safety unit and then shown on the display. Refer also to the "6 - IFS-10-PM parameters list" section on page 27 *.

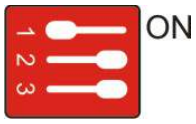
* If the version of the safety device is older than 04A, these parameters are available in the IFS-10. The maximum display value is ± 999 999 999.

For some examples about the indication of speed, rotational speed, production rates, etc. please refer to the "7 - Example of an individual scalable display" section on page 35.

For any information on the error messages and the status conditions please refer to the "8 - Error Messages" section on page 37.

5.4 "FACTORY SETTINGS" mode

The DIL switch positions of the safety unit are:

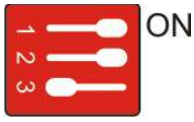


This mode is used to reset the IFS-10 safety unit back to the default values (factory setting values) at the next power on. The default parameters are set at the factory by Lika Electronic engineers to allow the operator to run the device for standard operation is a safe mode. No data entry to the IFS-10-PM display unit is available in this work mode!

WARNING
The IFS-10-PM programming unit cannot be reset to the default values!
In order to preserve the current parameter settings of the safety unit for future needs, they can be stored in the flash memory of the IFS-10-PM unit. The parameters must be transmitted from the safety unit to the IFS-10-PM first (see the "5.6 Load parameters" section on page 21). Then the parameters can be stored in the flash memory (see the "5.8 Save parameters" section on page 24).

5.5 "PROGRAMMING" mode

The DIL switch positions of the safety unit are:



In this mode the parameters of the IFS-10-PM unit or the parameters of the IFS-10 safety unit can be edited via the touch panel.

5.5.1 IFS-10-PM menu structure

NOTE
Please find the IFS-10-PM parameters list in the "6 - IFS-10-PM parameters list" section on page 27.

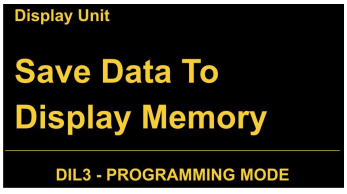
Display Unit

The first menu level allows the operator to select whether the parameters to be edited are in the IFS-10-PM unit or in the IFS-10 safety unit.
Please select **Display Unit** to edit the IFS-10-PM display unit parameters and then press the **OK** button to confirm.

Edit Data

Please select **Edit Data** to edit the IFS-10-PM display unit parameters and then press the **OK** button to confirm.
See the "5.7 Edit parameters" section on page 23.

Save Data To Display Memory



To save the parameters of the IFS-10-PM display unit, please select **Save Data To Display Memory** and then press the **OK** button to confirm.
See the "5.8 Save parameters" section on page 24.

NOTE
Please note that the current menu from the first menu level appears in the upper left hand corner of the display ("Display Unit" in the screenshots above).

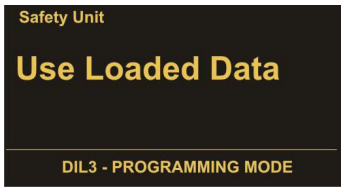
5.5.2 Menu structure of the Safety Unit

NOTE
For the complete list of the IFS-10 safety unit parameters please refer to the specific "User's manual" of the safety unit!

Safety unit

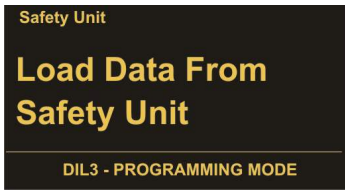
The first menu level allows the operator to select whether the parameters to be edited are in the IFS-10-PM display unit or in the IFS-10 safety unit.
Please select **Safety unit** to edit the IFS-10 safety unit parameters and then press the **OK** button to confirm.

Use Loaded Data



To edit already loaded parameters, please select **Use Loaded Data** and then press the **OK** button to confirm.
See the "5.6 Load parameters" section on page 21.

Load Data From Safety Unit

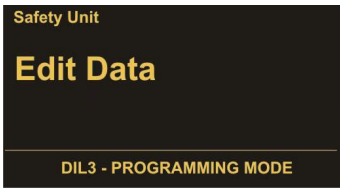


To load the current parameters from the safety unit, please select **Load Data From Safety Unit** and then press the **OK** button to confirm.
See the "5.6 Load parameters" section on page 21.

Load Data From Display Memory

To load the parameters for the safety unit from the flash memory of the IFS-10-PM display unit, please select **Load Data From Display Memory** and then press the **OK** button to confirm.
See the "5.6 Load parameters" section on page 21.

Edit Data



To edit the IFS-10 safety unit parameters please select **Edit Data** and then press the **OK** button to confirm.
See the "5.7 Edit parameters" section on page 23.

Save Data To Safety Unit

To save the parameters in the IFS-10 safety unit, please select **Save Data To Safety Unit** and then press the **OK** button to confirm.
See the "5.8 Save parameters" section on page 24.

Save Data To Display Memory

To save the parameters of the IFS-10 safety unit on the flash memory of the IFS-10-PM display unit, please select **Save Data To Display Memory** and then press the **OK** button to confirm.
See the "5.8 Save parameters" section on page 24.

NOTE
Please note that the current menu from the first menu level appears in the upper left hand corner (e.g. "Safety Unit" in the screenshots above).

5.6 Load parameters

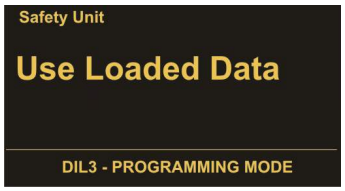
5.6.1 Loading the parameters of the Safety Unit

Load Data From...
The **Load Data From...** menu can be found as follows:

Safety unit	→	Load Data From...

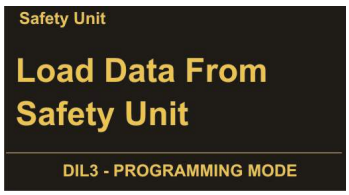
After selecting the **Safety unit** in the first menu level, the parameter sets to be loaded are available.

Use Loaded Data



This menu option can be selected only when data has already been loaded from either the IFS-10 safety unit or the flash memory of the IFS-10-PM display unit.
To edit the already loaded parameters, please select **Use Loaded Data** and then press the **OK** button to confirm.

Load Data From Safety Unit



To load the current parameters from the safety unit, please select **Load Data From Safety Unit** and then press the **OK** button to confirm.

Load Data From Display Memory

To load parameters for the safety unit from the flash memory of the IFS-10-PM display unit, please select **Load Data From Display Memory** and then press the **OK** button to confirm.

5.6.2 Messages when loading the parameters

ATTENTION! No Data In Flash

If **Load Data From Display Memory** is selected yet no data has been saved on the flash memory of the display unit, the following warning message will appear: **ATTENTION! No Data In Flash**.

5.6.3 Loading the parameters of IFS-10-PM

The **Load Data From...** menu is only available for the parameters of the IFS-10 safety unit. The parameters for the IFS-10-PM unit are loaded directly after **Display Unit** is selected in the first menu level.

5.7 Edit parameters

Edit Data

The **Edit Data** menu can be found as follows:

Safety unit	→	Load Data From...	→	Edit Data
Display Unit	→	Edit Data		

After choosing the device to be edited in the first menu level press **Edit Data**: the selectable parameters are shown. All the available parameters are listed in the menu. For the IFS-10-PM display unit parameters see the "6 - IFS-10-PM parameters list" section on page 27. For the IFS-10 safety unit parameters refer to the "User's manual" of the safety unit.

Press **Edit Data** to enter the menu for editing the parameters. After confirmation by pressing the **OK** button, the parameter groups are shown on the display.

Select the parameter to edit by using the arrow buttons. The current value of the parameter appears on the display too. After pressing the **OK** button, the parameter can be edited.

By using the left/right arrow buttons, the cursor can be skipped to another position (the relevant number flashes). By using the up/down arrow buttons, the value can be changed. Press the **OK** button to confirm or the **C** button to exit the menu and abort the entry.

WARNING

Parameters must be saved after any change.
This is important in order to ensure that the changes are effective also after the power supply is switched off or when the IFS-10-PM display unit is removed from the safety unit (see the "5.8 Save parameters" section on page 24).

WARNING

Changes in the parameters of the safety unit are only effective after saving them (refer to the "5.8.1 Saving the parameters to the Safety Unit" section on page 24).

5.8 Save parameters

Save Data To...
The **Save Data To...** menu can be found as follows:

Safety unit	→	Load Data From...	→	Edit Data/Save Data To...
Display Unit	→	Edit Data/Save Data To...		

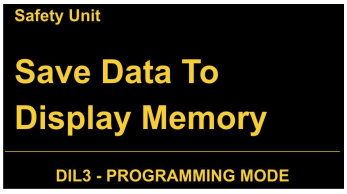
5.8.1 Saving the parameters to the Safety Unit

The following storage locations can be selected:

Save Data To Safety Unit

To save the parameters to the safety unit, please select **Save Data To Safety Unit** and then press the **OK** button to confirm.

Save Data To Display Memory



To save the parameters of the IFS-10 safety unit on the flash memory of the IFS-10-PM display unit, please select **Save Data To Display Memory** and then press the **OK** button to confirm.

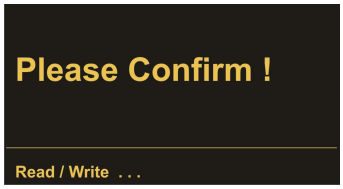
5.8.2 Saving the parameters to the Display Unit

Save Data To Display Unit

To save the parameters on the IFS-10-PM display unit, please select **Save Data To Display Unit** and then press the **OK** button to confirm.

5.8.3 Messages when saving the parameters

Please Confirm!



To save data correctly, the procedure must be confirmed by pressing the **OK** button. The storage location is shown in the info line of the display.

To Exit Without Save Press OK

After changing the parameters, if you exit the menu without saving data, the **To Exit Without Save Press OK** message appears on the display and the procedure must be confirmed by pressing the **OK** button. Press the **C** button to move back to the **Save Data To...** menu.
If you exit the menu without saving, data is not lost. It is still available in the **Use Loaded Data** menu (see on page 21).

5.9 Entering the pin value

Customarily the IFS-10-PM display unit is delivered without a PIN identification, i.e. with **PIN Value** = 0000. Thus the **PIN Value** request after initialization is skipped over.

If needed, the unit can be protected from unauthorized access by setting an individual PIN. To do this enter the following menu items:

Display Unit	→	Edit Data	→	Unit Settings	→	PIN Value

Please enter an individual 4 digit PIN and press the **OK** button to confirm the entry. After pressing the **OK** button, the changed PIN must be saved in order that the IFS-10-PM display unit is protected with the new PIN value starting from the next power-on (see the "5.8 Save parameters" section on page 24).

The PIN request is also usable as keypad interlock function.

To enable the operation of the IFS-10-PM display unit keypad, the PIN must be entered and confirmed by pressing the **OK** button.

WARNING
Should the individual PIN be forgotten or lost, you can enter the emergency pin **6079**.

6 - IFS-10-PM parameters list

NOTE
Please refer to each specific "User's manual" for the complete list of the safety unit parameters.

The parameters for "Input Scaling" are listed in the following menu of the safety device:

Safety unit	→	Edit Data	→	OPU menu	→	...

Parameter Group	Parameter	Min	Max	Default
Input Scaling for display 3 and 4 *	X Factor 1	1	999999	1
	/ Divisor 1	1	999999	1
	+/- Value 1	-999999	999999	0
	Units 1	0	12	0
	Decimal Point 1	0	5	0
	X Factor 2	1	999999	1
	/ Divisor 2	1	999999	1
	+/- Value 2	-999999	999999	0
	Units 2	0	12	0
	Decimal Point 2	0	5	0

* If the version of the safety device is lower than 04A, the scaling parameters are in the IFS-10-PM unit. If the version of the safety device is higher than 04A, the scaling parameters are available in the "OPU menu" of the safety device.

The parameters for "Unit Settings" and "Serial Settings" are listed in the following menu:

Display Unit	→	Edit Data	→	... Settings	→	...

Parameter Group	Parameter	Min	Max	Default
Unit Settings	Display Mode	1	3	1
	Screen Light	0	99	0
	Screen Saver	0	999	1
	PIN Value	0	9999	0
	Touch Tones	0	1	1
Serial Settings	Unit Number	11	99	11
	Serial Baud Rate	0	10	0
	Serial Format	0	9	0
	Serial Init	0	1	0

Input Scaling for display 3 and 4

For Display 3: Scaled Input 1 and Display 4: Scaled Input 2, refer to the "5.3 "NORMAL OPERATION" mode" section on page 16.

NOTE
If the version of the safety device is higher than 04A, this menu is available in the safety device as "OPU menu".

Parameter	Min	Max	Default
X Factor 1 It sets the multiplication factor to be applied to the input frequency 1 before it is shown in the display mode 3.	-999999	+999999	1
/ Divisor 1 It set the divisor to be applied to the input frequency 1 before it is shown in the display mode 3.	1	999999	1
+/- Value 1 It sets the value to be added to / subtracted from the input frequency 1 before it is shown in the display mode 3.	-999999	999999	0
Units 1 It sets the measuring unit of the value to be shown in the display mode 3.	0	12	0
Decimal Point 1 It sets the number of decimal places of the value to be shown in the display mode 3.	0	5	0
X Factor 2 see **X Factor 1**	-999999	+999999	1
/ Divisor 2 see **/ Divisor 1**	1	999999	1

0	Hz
1	kHz
2	m/s
3	km/h
4	mph
5	min-1
6	rpm
7	sek-1
8	rps
9	Stk/h
10	pcs/h
11	%
12	(no measuring unit)

+/- Value 2	see +/- Value 1	-999999	999999	0
Units 2	see Units 1	0	12	0
Decimal Point 2	see Decimal Point 1	0	5	0

NOTE
Parameters marked with "2" in the name are applied to the input frequency 2 and used to show the value in the display mode 4.

NOTE
For some examples about the visualization of the values expressed in frequency, speed, production rate, etc. please refer to the "7 - Example of an individual scalable display" section on page 35.

Unit Settings

Parameter	Min	Max	Default
Display Mode It sets which of the four display modes has to be used as start display (see the "5 - Parametrization of the safety unit" section on page 15). 1 – Display 1: Frequencies (Hz), see on page 16 2 – Display 2: Divergence (%), see on page 16 3 – Display 3: Scaled Input 1 for speed, rotational speed, frequency ... visualization, see on page 16 4 – Display 4: Scaled Input 2 for speed, rotational speed, frequency ... visualization, see on page 16	1	4	1
Screen Light It sets the brightness of the OLED display *. 0 – Display brightness minimum ... 99 – Display brightness maximum	0	99	0
Screen Saver It sets the time expressed in minutes after which the screen saver is activated *. 0 – screen saver OFF 1 – screen saver active after 1 minute ... 999 – screen saver active after 999 minutes	0	999	1
PIN Value It sets a PIN code for access. If you set "0000" the PIN request is not active. Any other value will be used as PIN code at next power-on of the IFS-10-PM display unit. For further information please refer to the "5.9 Entering the pin value" section on page 25.	0000	9999	0000
Touch Tones This item is used to set whether the keypad tones are active or inactive. 0 – keypad tones OFF 1 – keypad tones ON	0	1	1

* Changes in the **Screen Light** or **Screen Saver** parameter values are effective immediately, but they are lost if not saved (see the "5.8 Save parameters" section on page 24)!

Serial Settings

<table>
<tr><th>Parameter</th><th>Min</th><th>Max</th><th>Default</th></tr>
<tr><td>Unit Number

An identification number between 11 and 99 can be assigned to the device (default setting = 11). Unit numbers must not contain any "0" because such numbers are used for group- or bulk-addressing.</td><td>11</td><td>99</td><td>11</td></tr>
<tr><td>Serial Baud Rate

It allows to set the serial transmission speed (baud rate). Available options are:
<table>
<tr><td>0</td><td>9 600 Baud</td></tr>
<tr><td>1</td><td>4 800 Baud</td></tr>
<tr><td>2</td><td>2 400 Baud</td></tr>
<tr><td>3</td><td>1 200 Baud</td></tr>
<tr><td>4</td><td>600 Baud</td></tr>
<tr><td>5</td><td>19 200 Baud</td></tr>
<tr><td>6</td><td>38 400 Baud</td></tr>
<tr><td>7</td><td>56 000 Baud</td></tr>
<tr><td>8</td><td>57 200 Baud</td></tr>
<tr><td>9</td><td>76 800 Baud</td></tr>
<tr><td>10</td><td>115 200 Baud</td></tr>
</table></td><td>0</td><td>10</td><td>0</td></tr>
<tr><td>Serial Format
It allows to set the format of the serial data.
Available options are (default value in bold):
<table>
<tr><td>0</td><td>data bits = 7 parity = even stop bit = 1</td></tr>
<tr><td>1</td><td>data bits = 7 parity = even stop bit = 2</td></tr>
<tr><td>2</td><td>data bits = 7 parity = odd stop bit = 1</td></tr>
<tr><td>3</td><td>data bits = 7 parity = odd stop bit = 2</td></tr>
<tr><td>4</td><td>data bits = 7 parity = --- stop bit = 1</td></tr>
<tr><td>5</td><td>data bits = 7 parity = --- stop bit = 2</td></tr>
<tr><td>6</td><td>data bits = 8 parity = even stop bit = 1</td></tr>
<tr><td>7</td><td>data bits = 8 parity = odd stop bit = 1</td></tr>
<tr><td>8</td><td>data bits = 8 parity = --- stop bit = 1</td></tr>
<tr><td>9</td><td>data bits = 8 parity = --- stop bit = 2</td></tr>
</table></td><td>0</td><td>9</td><td>0</td></tr>
<tr><td>Serial Init

This parameter allows to set the baud rate for the transmission of the initialization values to the OS software tool or to the IFS-10-PM programming and display unit.

0: The initialization values will be transmitted at 9600 baud. After initialization the unit operates again according to the user's settings.

1: The initialization values will be transmitted using the user defined baud rate. After initialization the unit operates again according</td><td>0</td><td>1</td><td>0</td></tr>
</table>

to the user's settings. Using a baud rate higher than 9600 baud, the duration of the initialization procedure will be shortened.			

7 - Example of an individual scalable display

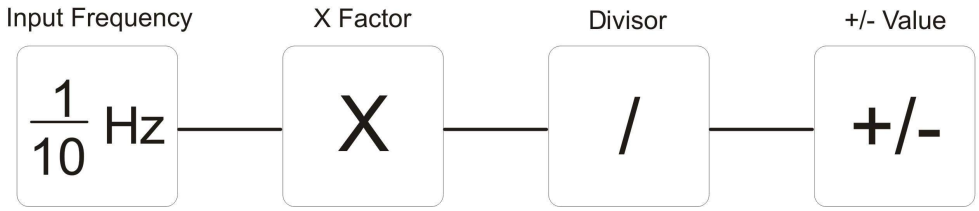
NOTE
Use the arrow buttons to select the unit mode of the safety device.

The programming unit operates using the frequencies measured by the safety unit. The inputs that have to be used by the safety unit must be specified in the "Operational Mode" of the safety unit.

NOTE
If the version of the safety device is lower than 04A, the scaling parameters are in the IFS-10-PM unit. If the version of the safety device is higher than 04A, the scaling parameters are available in the "OPU menu" of the safety device.

WARNING
Changes will be only effective after saving! See the "5.8 Save parameters" section on page 24.

The calculation of an individual scalable display is made as follows:



The measuring unit (see **Units 1** / **Units 2**) as well as the number of decimal digits (see **Decimal Point 1** / **Decimal Point 2**) are freely selectable and do not affect the accuracy of the calculation.

7.1 Examples of an input frequency of 1 kHz

If 1000.0 [Hz] is shown on the display 1 (**Display 1: Frequencies (Hz)**), the **Input Scaling for display 3 and 4** parameter group can be used to adjust the following scaling values which will be shown on the display 3 (**Display 3: Scaled Input 1**).

Display 1: Frequencies (Hz)	X Factor 1 / 2	/ Divisor 1 / 2	+/- Value 1 / 2	Units 1 / 2	Decimal Point 1 / 2	Display 3: Scaled Input 1
1000.0 [Hz]	1	10	0	12	0	1000
1000.0 [Hz]	1	1	0	0	1	1000.0 [Hz]
1000.0 [Hz]	1	1000	0	1	1	1.0 [kHz]

1000.0 [Hz]	1	1	0	1	4	1.0000 [kHz]
1000.0 [Hz]	60	2048 *	0	6	2	29.29 [rpm]

* Number of pulses per encoder revolution

For any information on the parameters of the Input Scaling for display 3 and 4 group, please refer to page 29.
For any information on the Display 1: Frequencies (Hz) and the Display 3: Scaled Input 1 / Display 4: Scaled Input 2 please refer to the "5.3 "NORMAL OPERATION" mode" section on page 16.

8 - Error Messages

Error and status messages will be shown in the info line of the IFS-10-PM display unit.

8.1 Error messages from the Safety Unit

Runtime Error
Initial Error

When an error message (**Runtime Error** or **Initial Error**) is invoked from the safety unit, a hexadecimal value (H) appears right next to the error message in the status line of the display. All (H) values and their related error explanations are listed in the "User's manual" of the safety unit (see the "Error detection" section).

EXAMPLE
The hexadecimal number of the error message is the sum of the individual errors:

H 0000 0200	Readback Digital Output Error
H 0000 0100	Temperature Error
H 0000 0080	Overlap Error
H 0000 0004	Encoder Supply Error
H 0000 0002	SIN/COS Channel 2 Error

Runtime Error = **H 0000 0386**

8.2 Status messages from IFS-10-PM

Error and status messages will be shown in the info line of the IFS-10-PM display unit.

Communication Offline

If the **Communication Offline** status message appears on the display:

- the safety unit must be switched off and then on again in order to re-initialize the safety and display unit;
- or the serial settings must be either checked or adjusted.

CRC Error

It is invoked to appear if corrupted data is found while saving data to or loading data from the flash memory. Corrupted data cannot be loaded from the flash memory and used: it needs to be saved again.

Readback Error

It is invoked to appear if data that has been transmitted to the safety device does not match with the read back data.

Serial Error

In case of errors during the serial transmission (e.g. parity errors or transmission errors), this message is invoked to appear. The IFS-10-PM display unit must be removed and then connected again for a reinitialization of the serial interface.

9 - Technical Specifications

Power supply	Input voltage: Protection: Power consumption: Connection:	directly via a safety unit mechanical polarity protection approx. 100 mA 8 position pin strip
Display elements	Display: Resolution: Brightness:	1.54" OLED display 128 x 64 pixels digitally adjustable (99 steps)
Operating elements	Keypad: Miscellaneous:	touchscreen (6 capacitive touch fields) key tones (switchable to mute)
Data memory	Storage medium: Data retention:	Flash EEPROM 1,000,000 cycles
Housing	Material: Mounting: Dimensions: Protection class: Weight:	front: polycarbonate, black / yellow / clear rear: polystyrene, black plug-on safety unit 50 x 80 x 15 mm / 1.969 x 3.150 x 0.591" (plugged into the safety device) IP20 approx. 50 g
Temperature range	Operation: Storage:	-20 ... +55 °C / -4 °F ... +131 °F -25 ... +70 °C / -13 °F ... +158 °F
Conformity & standards	EMC 2004/108/EC: Guideline 2011/65/EU:	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4 RoHs compliant

10 – Default parameters list

Parameters list	Default value		
Input Scaling for display 3 and 4			
X Factor 1	1		
/ Divisor 1	1		
+/- Value 1	0		
Units 1	0		
Decimal Point 1	0		
X Factor 2	1		
/ Divisor 2	1		
+/- Value 2	0		
Units 2	0		
Decimal Point 2	0		
Unit Settings			
Display Mode	1		
Screen Light	0		
Screen Saver	1		
PIN Value	0		
Touch Tones	1		
Serial Settings			
Unit Number	11		
Serial Baud Rate	0		
Serial Format	0		
Serial Init	0		

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Document release	Release date	Description	HW	SW	File version
1.0	31.05.2016	First issue	-	-	01a, 02a
1.1	05.05.2022	USB information removed, address setting, changing the scaled input, new parameters added	-	-	02b, 02c, 03a, 03b, 04a

Dispose separately

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