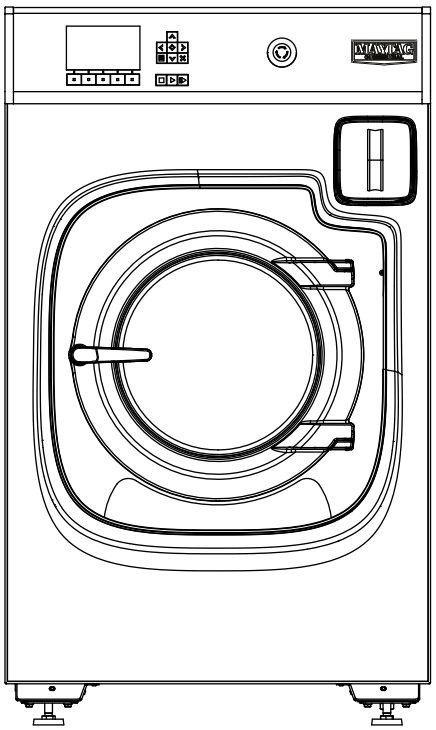
PROGRAMMING GUIDE

Soft Mount Commercial Washer

MWS25, MWS35, MWS45, MWS55, MWS65, MWS85



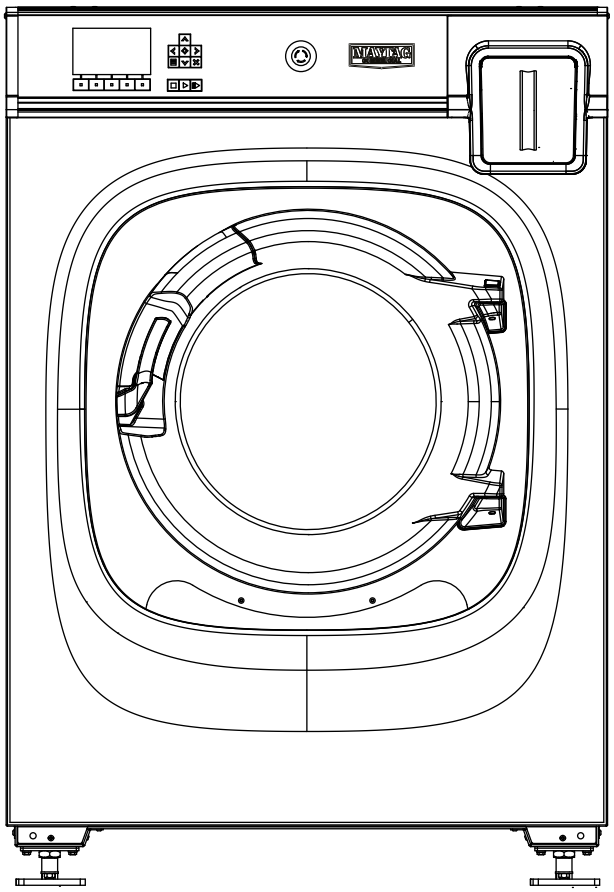


TABLE OF CONTENTS

WASHER SAFETY INFORMATIONS

Precautionary statements (*"Danger", "Warning", and "Caution"*), followed by specific instructions are found in this manual and on machine decals. These precautions are intended for the personal safety of the operator, user, servicer and those maintaining the machine.

DANGER

Danger indicates the **presence of a hazard that will cause severe** personal injury, death, or substantial property damage if the danger is ignored.

WARNING

Warning indicates the **presence of a hazard that can cause severe** personal injury, death, or substantial property damage if the warning is ignored.

CAUTION

Caution indicates the **presence of a hazard that will or can cause minor** personal injury or property damage if the caution is ignored.

IMPORTANT

The word "important" is used to inform the reader of **specific procedures where minor machine damage will occur** if the procedure is not followed.

NOTE

The word "note" is used **to communicate installation, operation, maintenance or servicing information** that is important but not hazard related.

Table 1.1 Precautionary Statement Icons and Explanations

1. CONTROL PANEL INSTRUCTIONS

1.1. CONTROL PANEL

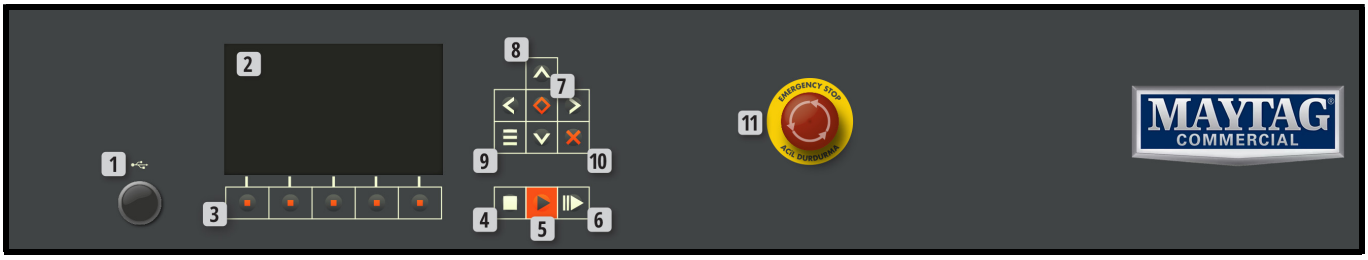


Fig. 1.1 Control Panel

No	Button	Instruction
1		**USB Port:** This port is used to mount a USB flash disk into the control panel for file transfer operations.
2		**RGB TFT Screen:** The screen displays the interface of the controller software.
3		**Program Memory/Shortcut Keypads:** These keypads are used as shortcut keys. Refer to the **1.3.3.** *"Software Button-Memory/Shortcut Keypad Mappings"* section on page 10.
4		**Stop Keypad:** This keypad provides stopping functions in different program stages.
5		**Start Keypad:** This keypad provides starting functions in different program stages.
6		**Jump Keypad:** This keypad provides phase and subphase jumping functions during program execution. Refer to the *"The procedure to skip a subphase or phase by pressing the "Jump" keypad"* procedure on page 78. It is also used to activate the "Delayed Program Execution" feature on the "Program Selection" window. Refer to the **1.13.10.** *"DELAYED PROGRAM EXECUTION"* section on page 61.
7		**Confirmation/OK Keypad:** This keypad provides confirmation functions in various program stages.
8		**Direction Keypads:** These keypads are used to browse through interface elements and to position the cursor on text areas.
9		**Menu Keypad:** This keypad displays a menu which includes the operation options of the active screen.
10		**Escape Keypad:** This keypad does return to the former screen, closes the menu if it's open or closes the active program.
11		**Emergency Stop Button:** This button does cut off power to the motor of the machine.

Table 1.1 Components and Keypads of the Control Panel

1.2. PROGRAM SELECTION WINDOW

The control panel will always directly display the “Program Selection” window when the machine is powered on. This behavior will change if a program was running during a power failure or a shutdown event. Refer to *"Program Behavior After Power Failure"* section on page 80 to learn more about this exception. You can select a program and start it on the “Program Selection” window.

Fig. 1.2 Program Selection Window

No	Icon	Instruction
1		**Notification Bar:** The “Notification Bar” includes various kinds of notifications such as alarms, status icons, version info, user info, date and time.
2		**Program Locked Icon:** This icon indicates that program editing is locked for the active (*selected*) program.
3		**Software Version:** This cell displays the version number of the controller software.
4		**Alarm Icon and Counter:** This icon indicates that an alarm is present (*has been triggered*) and displays the count of present (*active*) alarm types.
5		**USB Flash Disk Icon:** This icon indicates that a USB Flash Disk has been plugged in into the USB port.
6		**User Icon and Username:** This icon displays the name of the logged on user. The default user during power on is always “Operator” unless a USB authentication dongle has been plugged in before powering on the machine.
7		**Date and Time Area:** This area displays the current date and time.
8		**Program Number and Name:** These columns display the number and the name of the selected program.
9		**Program Phases and Subphases Section:** This section displays the phases and sub-phases of the selected program.
10		**Program Shortcuts:** These boxes do correspond to the physical memory keypads below them and include the numbers and names of the programs which are assigned as shortcuts.
11		**Program Phase Icons:** These icons display and represent the defined phases of a program. Refer to the **1.2.1.** *"Program Phases"* section on page 5.
12		**Program Subphase Icons:** These icons display and represent the defined subphases of a program. Refer to the **1.2.2.** *"Program Subphases"* section on page 6.

Table 1.2 Program Selection Window Components

1.2.1. Program Phases

A standard wash program (*also called a "cycle"*) consists of 3 main stages (*we use the term "phase" for program stages*): Wash / Rinse / Extraction (*also called "Spin"*). These phases may be divided into successive repeating phases or pre-phases. The phases are being displayed with specific icons on the "Program Selection" window and on the "Program Execution" window.

Icon	Name	Explanation
	**Prewash**	The "Prewash" phase is used to clean heavily soiled laundry by soaking it into water and prepare the laundry for a more effective "Main Wash" phase.
	**Extra Prewash**	"Extra Prewash" phases are used for further soaking action on the laundry when required. A single program can have at most 3 "Extra Prewash" phases.
	**Main Wash**	The machine uses agitation to mix the water and detergent, as well as to move the clothing around the drum to clean the laundry during the "Main Wash" phase.
	**Rinse**	The machine uses intervals of water intake and drain to force the chemicals and detergent out of the drum during the "Rinse" phase. A single program can have at most 3 "Rinse" phases.
	**Extraction**	The "Extraction" phase (*Spinning*) is required to extract water from the laundry, getting it as dry as possible before the end of the program.

Table 1.3 Phase Icons, Names and Explanations

1.2.2. Program Subphases

The controller has to execute certain steps (*we use the term "subphase" for program phase steps*) to finish a phase. The combination of these subphases may differ between different phases and even between different programs but the subphases are always ordered in the same manner: Water Intake / Detergent Intake / Water Heating / Washing / Water Drainage / Extraction. You can skip certain subphases when creating a program phase. The subphases are being represented with specific icons on the "Program Selection" window and on the "Program Execution" window.

Icon	Name	Explanation
	**Water Intake**	The "Water Intake" subphase is used to activate one of the water intake valves installed into the machine at the beginning of a phase to take in water into the drum. The color of the water droplet in the icon does change based on the selected water valve type. • The "Cold Water" valve is represented with a "blue" colored droplet • The "Hot Water" valve is represented with a "red" colored droplet • The "Mixed Water" intake method is represented with a "blue and red" colored droplet • The "Soft Water" (*aka "3rd Water" Valve*) valve is represented with a "green" colored droplet The number to the right of this icon represents the set target water level for that specific phase. If there is a ratio to the right of this icon then it represents the set water intake ratio per loaded laundry weight. The absence of this icon on the "Program Selection" window means that the water intake level has been set as "0" (*zero*) for that specific phase.
	**Detergent Intake**	The "Detergent Intake" subphase is used to activate specific detergent valves either installed into the machine or connected to the external chemical terminals to take in detergents or chemicals into the drum after the "Water Intake" subphase. The characters to the right of this icon represent the set detergent boxes (*or chemical valves*) for that specific phase. The absence of this icon on the "Program Selection" window means that "Detergent Intake" has not been selected for that specific phase.
	**Temperature**	The "Temperature" subphase is used to activate the designated heater of the machine to heat the water in the drum to the specified target temperature after the "Detergent Intake" subphase. The number to the right of this icon represents the set target temperature for that specific phase.
	**Washing Duration**	The "Washing Duration" subphase is used to define the total duration of the drum rotation to agitate the load in the drum after the "Temperature" subphase ends. The number to the right of this icon represents the set target washing duration (*in minutes*) for that specific phase.
	**Drainage**	The "Drainage" subphase does drain the water in the drum after the "Washing Duration" subphase ends. The absence of this icon on the "Program Selection" window means that the "No Drain" option has been selected for that specific phase.
	**Intermediate Extraction**	The "Intermediate Extraction" subphase is used to extract water from the load in the drum after the "Drainage" subphase ends. The number to the right of this icon represents the set target extraction duration (*in minutes*) for that specific phase. The absence of this icon on the "Program Selection" window means that the "None" (*No Intermediate Extraction*) option has been selected for that specific phase.

Table 1.4 Subphase Icons, Names and Explanations

1.3. THE USER INTERFACE

The user interface presented on the display of the controller is the sum of the graphical points of operator-controller interaction and communication on the machine. The total of user interaction and communication points on the machine do consist of various keypads, an emergency stop button and the controller display which can be expanded also to an optional siren for aural communication. The operator has to command the machine by utilizing the keypads and the software. The controller display does communicate with the operator via textual and visual notifications and icons. These communication methods are being explained in the following chapter.

1.3.1. States of Software Buttons

The software buttons on all menu windows can have three different states; they can either be **"Selected"**, **"Active"**, or **"Passive"**. Each state is indicated with a distinctive and different background and icon color.

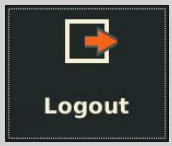
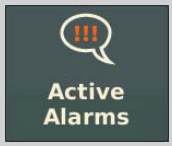
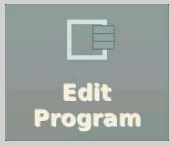
Icon	State	Explanation
	**Selected**	The black background indicates that the software button is **selected**.
	**Active**	The dark gray background indicates that the software button is **active** and can be selected.
	**Passive**	The light gray background together with the grayscale colored icon do indicate that the software button is **passive** and can not be selected.

Table 1.5 Software Button State Examples, Names and Explanations

Each menu window can only have one **"selected"** software button which can be activated by pressing the "Confirmation/OK" keypad on the control panel.

The menu software buttons are selected by pressing the up-down-left-right direction keypads.

"Active" software buttons are **selectable** buttons.

"Passive" software buttons are **non selectable** buttons.

The functions/software buttons on various menu windows and the shortcut button bar are activated based on:

- the access level of the logged in user and/or,
- the selected program and/or,
- the login status of the active user and/or,
- the function of the shortcut button.

Some software buttons won't be activated and will be in the **"passive"** state based on the permissions of the logged in user. Refer to the **1.14.1.** *"USER SETTINGS"* section on page 63 for user authorization details.

Some program functions won't be activated and their corresponding software button will be in the **"passive"** state when a factory default program is selected. Refer to the **1.13.5.** *"EDITING PROGRAMS"* section on page 40.

The user will be automatically logged out and some software buttons will switch to the **"passive"** state when the system logout duration of that specific user is completed. The logout countdown resets and restarts each time any keypad is pressed. Check system parameter number 4 for the automatic logout duration setting. Refer to the **1.7.** *"PARAMETERS WINDOW"* section on page 14.

A shortcut software button will be in the **"passive"** state if the function is not active yet. (*For example you have to press the "Start Test" shortcut keypad and start a communication test before being able to use the "Stop Test" shortcut software button and keypad.*)

1.3.2. Alarm Messages

The alarm messaging system uses pop-up message boxes or sliding message bars to communicate alarms, errors, warnings and notifications to the operator.

Pop-Up Alarm Message Boxes

The “Pop-Up Alarm Message Boxes” are used as an acknowledgment system. These boxes do appear in the center of the screen. They include the ID number of the alarm message followed by the alarm message and a confirmation software button with the “OK” text inside of it.

A pop-up alarm message box won’t be removed from the screen until the operator presses the “Confirmation/OK” keypad on the control panel and in doing so acknowledges that the message has been read.

The only exception for alarm acknowledgment in the alarm message boxes is the “Program Finished” message which is displayed when a program is finished successfully. This message indicates that the last executed program has finished successfully and a new program can be started (*after unloading the drum in case there is a load in the drum*).

Fig. 1.3 Sample Pop-Up Alarm Message Box

Refer to the *"Alarm Messages Table"* on page 81 for alarm message explanations and to the *"Fault Messages Table"* on page 82 for fault message explanations.

Sliding Message Bars

The “Sliding Message Bars” are used to inform the operator of a problem, warn them about their actions or inform them about a successful result related to their recent action. The message bar does slide into the window from the bottom of the screen. They are displayed immediately after an error caused by an action of the operator which can be fixed by a simple and non-technical action or when an operation has been successfully completed. Their display duration does change from “2 seconds” to “permanent” based on the background operation.

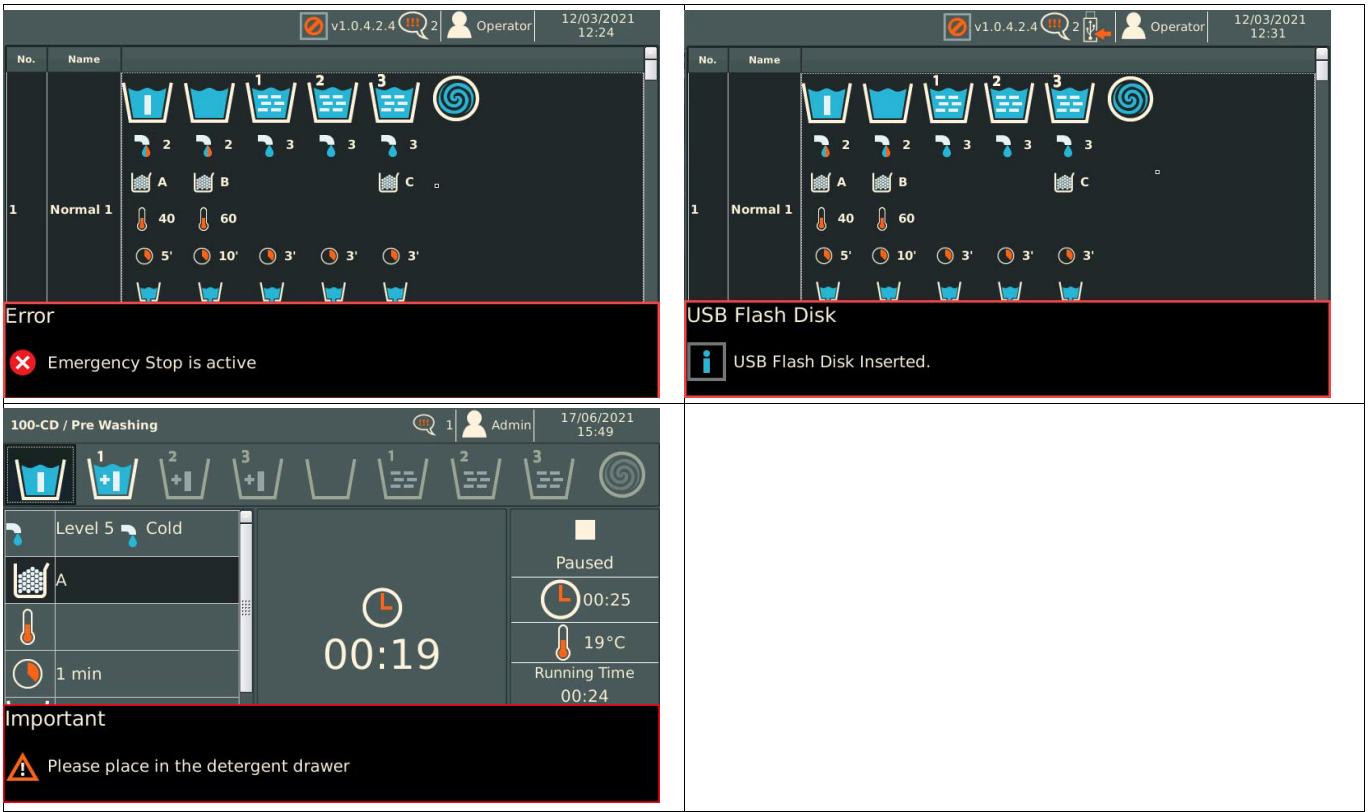
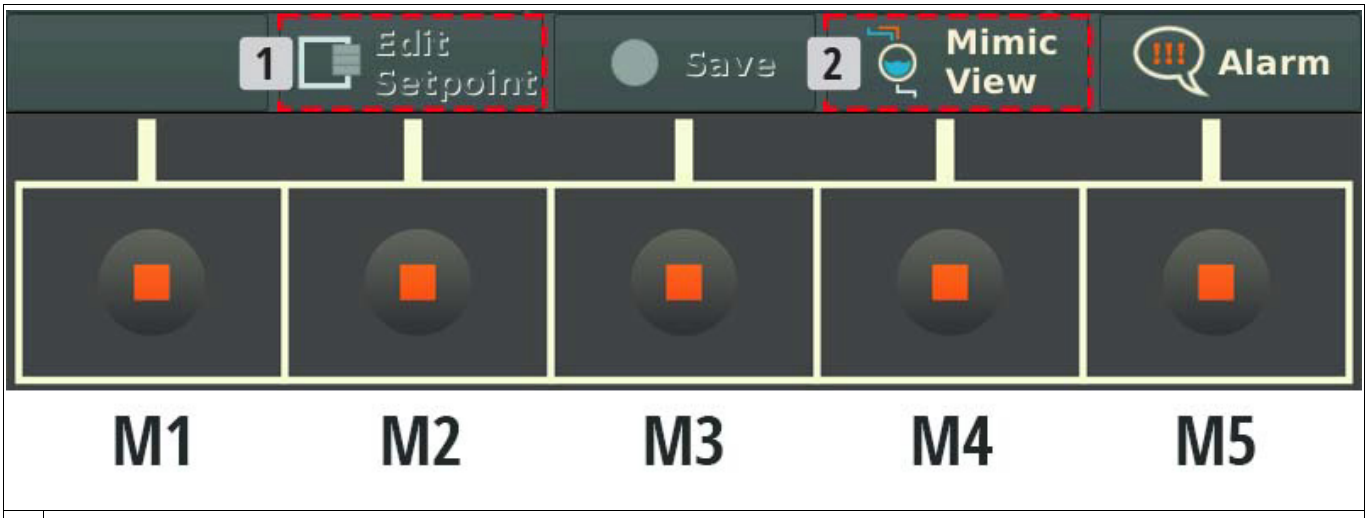


Fig. 1.4 Sample Information, Warning and Error Messages in Sliding Message Bars

1.3.3. Software Button-Memory/Shortcut Keypad Mappings

The memory keypads below the controller screen are used in cases where the software buttons on the screen become insufficient for the program functions or to provide a shortcut key for some functions.



1	Inactive Software Memory Shortcut Button
2	Active Software Memory Shortcut Button

Fig. 1.5 Software Button - Memory/Shortcut Keypad Mappings

In such cases a corresponding virtual button (*Software Button*) is displayed on the screen area right over the memory/shortcut keypad which has the additional function. Pressing the corresponding memory/shorcut keypad underneath a software button activates the function assigned to that specific software button.

The memory keypads are being designated with codes in this manual based on their order on the panel from left to right. The leftmost keypad is designated as **"M1"** and the rightmost keypad is designated as **"M5"**.

Inactive software buttons are displayed with grayscale colored icons whereas active software buttons are displayed with colored icons.

1.4. MAIN MENU

Fig. 1.6 Main Menu

No	Description
1	Edit Program Software Button
2	Copy Program Software Button
3	Delete Program Software Button
4	Export Program Software Button
5	Import Program Software Button
6	Service Software Button
7	Active Alarms Software Button
8	Logout Software Button

Table 1.6 Main Menu Components

The “Main” menu is used to access to the program and service functions, to access the active alarm list and to login and logout.

Some software buttons won’t be activated and will be in the **“passive”** state based on the permissions of the logged in user. Refer to the **1.14.1.** *"USER SETTINGS"* section on page 63 for user authorization details.

Some program functions won’t be activated and their corresponding software button will be in the **“passive”** state when a factory default program is selected. Refer to the **1.13.5.** *"EDITING PROGRAMS"* section on page 40.

The user will be automatically logged out and some software buttons will switch to the **“passive”** state when the system logout duration of that specific user is completed. The logout countdown resets and restarts each time any keypad is pressed. Check system parameter number 4 for the automatic logout duration setting. Refer to the **1.7.** *"PARAMETERS WINDOW"* section on page 14.

The procedure to access the “Main” menu

- The “Main” menu can be accessed by pressing the “Menu” keypad on the front panel. The “Program Selection” window has to be active and there shouldn’t be an active pop-up type “Alarm Message Box” on the screen to be able to open the “Main” menu.

1.5. LOGIN WINDOW

The controller utilizes a user authorization level based access model. Some advanced functions can only be accessed by authorized users. The “Login” window is used to authorize and login a user. Refer to the **1.14.1.** *"USER SETTINGS"* section on page 63 for details about “User Definitions”.

The procedure to login as an authorized user

- Press the “Menu” keypad to open the “Main” menu.
- Select the “Login” software button on the “Main” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “User Login” window.

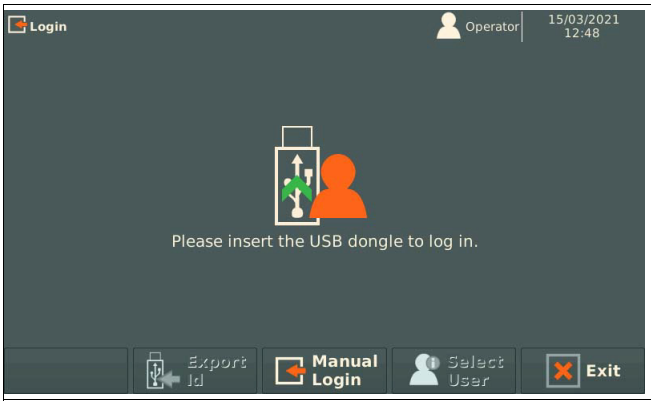


Fig. 1.7 User Login Window

- If you have a USB dongle then you should plug it into the USB port which is located on the front panel to automatically log into the system.

- Press the **M3** memory keypad (*which corresponds to the "Manual Login" software button*) to switch to the "Manual User Login" window to login manually.
- **NOTE:** In order to make custom changes, use the Global Access User Name listed below
  User Name: Technician
  Password: 192323

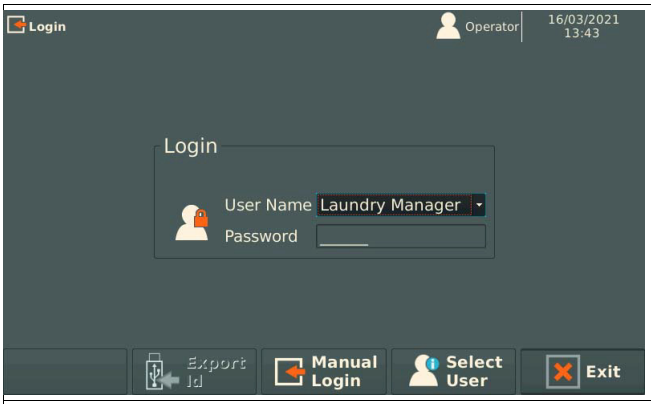


Fig. 1.8 Manual User Login Window

- The "User Name" box will be active when the "Manual User Login" window is opened. Select the user with the up-down direction keypads. Each press of the up-down direction keypads will change the user name to the next one in the user list.
- Press the "Confirmation/OK" keypad to confirm your selection.
- The cursor will switch to the first digit in the "Password" entry box. Enter the digits of the password by pressing the up-down direction keypads to change the value of the digit and by pressing the left-right direction keypads to change the cursor to the next digit place.
- Press the "Confirmation/OK" keypad to confirm the password.
- If the password is correct then the screen will switch to the "Program Selection" window. The name of the logged in user will be displayed on the "Username" section on the "Notification Bar".

Fig. 1.9 Laundry Manager on Username section on the Notification Bar

- The "Login Failed" sliding error message bar will be displayed and the selection will switch back to the "User Name" box when the password is incorrect.

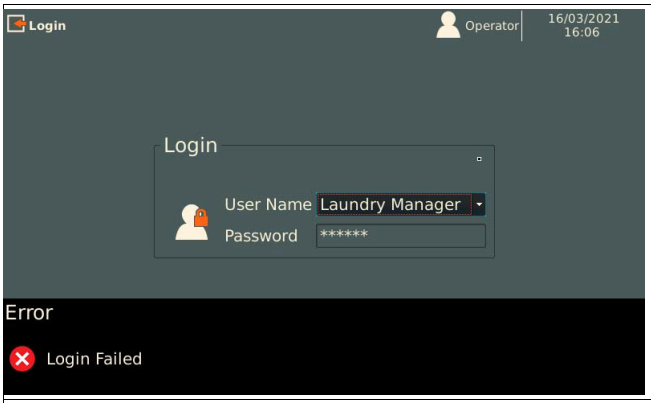


Fig. 1.10 "Login Failed" Sliding Error Message Bar

Press the **M4** memory keypad (*which corresponds to the "Select User" software button*) to switch back to the "User Name" box.

Press the **M5** memory keypad (*which corresponds to the "Exit" software button*) to exit from the "Login" window back to the "Main" menu without logging in with a different user.

NOTE

The default "Operator" level user doesn't have a password. The controller does automatically login with this default user at start-up which has basic operation rights.

Consult to your seller/local authorized service for the password of the "Laundry Manager" level user which has additional rights such as program/parameter editing, file backup/restore rights.

Refer to the **1.14.2.** *"USER AUTHORIZATIONS TABLE"* section on page 66 for details.

1.6. SERVICE MENU

Fig. 1.11 Service Menu

No	Description
1	Parameters Software Button
2	Diagnostics Software Button
3	IO Link Software Button
4	Detergent Definitions Software Button
5	Statistics Software Button
6	Factory Software Button
7	Troubleshooting Software Button
8	System Settings Software Button

Table 1.7 Service Menu Components

The "Service" menu is used to access advanced functions such as "Parameters", "Diagnostics", "IO Link", "Detergent Definitions", "Statistics", "Factory Settings", "Troubleshooting" and "System Settings".

Some software buttons won't be activated and will be in the **"passive"** state based on the permissions of the logged in user. Refer to the **1.14.1.** *"USER SETTINGS"* section on page 63 for user authorization details.

Some program functions won't be activated and their corresponding software button will be in the **"passive"** state when a factory default program is selected. Refer to the **1.13.5.** *"EDITING PROGRAMS"* section on page 40.

The user will be automatically logged out and some software buttons will switch to the **"passive"** state when the system logout duration of that specific user is completed. The logout countdown resets and restarts each time any keypad is pressed. Check system parameter number 4 for the automatic logout duration setting. Refer to the **1.7.** *"PARAMETERS WINDOW"* section on page 14.

The procedure to enter the "Service" menu

- Press the "Menu" keypad to open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to access the "Service" menu.

1.7. PARAMETERS WINDOW

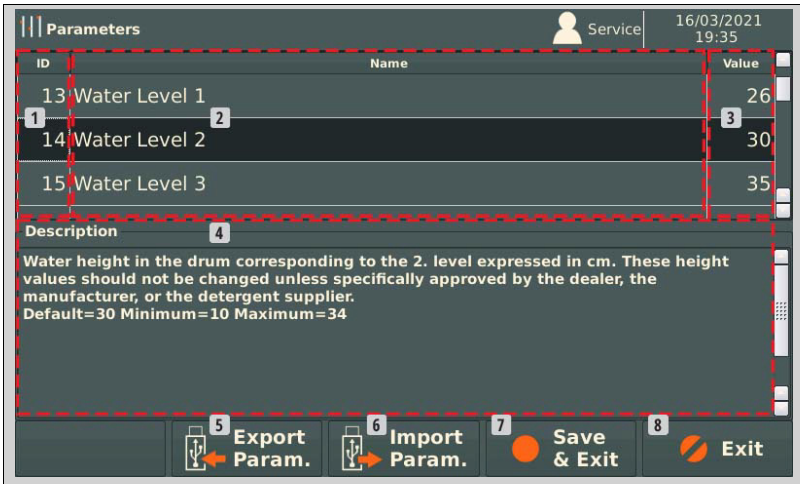


Fig. 1.12 Parameters Window

No	Description
1	Parameter ID Number Cell
2	Parameter Title Cell
3	Parameter Value Cell
4	Parameter Description Box
5	Parameter Export Software Button
6	Parameter Import Software Button
7	Save Changes and Exit Software Button
8	Exit Software Button

Table 1.8 Parameters Window Components

Parameters are used to customize and fine tune the parametric function values of the controller.

The parameter list is filtered by the authorization level of the logged on user.

Some parameters can only be modified via the "Factory" window to prevent the users to execute system critical modifications on the "Parameters" window and direct them to this special window. The "Factory" window can only be accessed by the "Service" level user whereas the "Parameters" window is accessible to the "Laundry Manager" level user.

Parameters which can only be edited on the "Factory" window

- **1** Machine Model
- **7** Machine Measurement Unit Type
- **108** Laundry Scale System Status
- **123** Loading Door Lock Type
- **164** Detergent Unit Type
- **166** Wet Cleaning Feature
- **169** Motor Brake Support

You'll be able to browse these parameters but you'll be notified with an informational sliding message bar stating that "*This parameter can't be edited manually*" when you try to edit one of these parameters.

The procedure to access the "Parameters" window

- Press the "Menu" keypad to open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to access the "Service" menu.
- Select the "Parameters" software button on the "Service" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to access the "Parameters" window.

1.7.1. Browsing The Parameters

You can browse the parameters list by pressing the direction keypads. The up-down direction keypads let you browse the list one item per keypad press whereas the left-right direction keypads let you browse the list 4 items per keypad press.

The selected parameter row (*cell*) will be highlighted in a black background color. The parameter description box will display the detailed description of the selected parameter.

The procedure to edit the parameters

- Press the “Menu” keypad to open the “Main” menu.
- Select the “Service” software button on the “Main” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to access the “Service” menu.
- Select the “Parameters” software button on the “Service” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to access the “Parameters” window.
- Select the target parameter to edit by pressing the direction keypads.
- Press the “Confirmation/OK” keypad. The value cell of the selected parameter will become active with a blinking cursor in it.
- Press the up-down direction keypads to modify the value.
- Press the “Confirmation/OK” keypad to temporarily save the modified value. The modified values won’t be saved into the database and get activated until all of the changes on the parameter window have been saved.
- Press the **M4** memory keypad (*which corresponds to the “Save&Exit” software button*) to finalize the modifications and save the changes into the database. The “Parameters” window will be closed and the “Service” menu will be displayed.
  - You can also press the **M5** memory keypad (*which corresponds to the “Exit” software button*) which will display a confirmation dialog box with the message “Do you want to save the changes?”. Select the proper reply (*“Yes” or “No”*) by pressing the direction keypads and press the “Confirmation/OK” keypad to exit from the parameters window by confirming your choice. You will return back to the “Service” menu.

Fig. 1.13 Confirmation Dialog Box for saving the modifications to the Database

1.7.2. Parameter Export/Import

The parameter export/import feature can be used to transfer the parametric settings of one machine to another machine or to backup the current parameter settings. This feature should only be used if you copy the parameters between multiple machines with same model and options. Copying parameters between different models or between same models with different options should be avoided.

The procedure to export the Parameters

- Insert a USB flash disk into the USB port on the panel. The USB flash disk should have enough empty space on it to save the parameters.
- Press the "Menu" keypad and open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Service" menu.
- Select the "Parameters" software button on the "Service" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Parameters" window.
- Press the **M2** memory keypad (*which corresponds to the "Export Param." software button*) to open the "File Export Filename Entry" dialog box.

Fig. 1.14 File Export Filename Entry Dialog Box

- Enter a name for the parameter export file into the filename entry box and press the "Confirmation/OK" keypad. Press the up-down direction keypads to change the character on a specific digit and press the left-right direction keypads to change the digit place. The filename can be at most 15 characters long.
- The "Export Operation Success" informational sliding message bar will be displayed and the parameter settings will be copied to the USB flash disk with the specified filename.

Fig. 1.15 "Export Operation Success" Informational Sliding Message Bar

The procedure to import the Parameters

- Insert a USB flash disk which contains the exported set of parameters into the USB port on the panel.
- Press the “Menu” keypad and open the “Main” menu.
- Select the “Service” software button on the “Main” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Service” menu.
- Select the “Parameters” software button on the “Service” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Parameters” window.
- Press the **M3** memory keypad (*which corresponds to the “Import Param.” software button*) to open the USB file listing window. The parameter files stored on the USB flash disk will be listed.

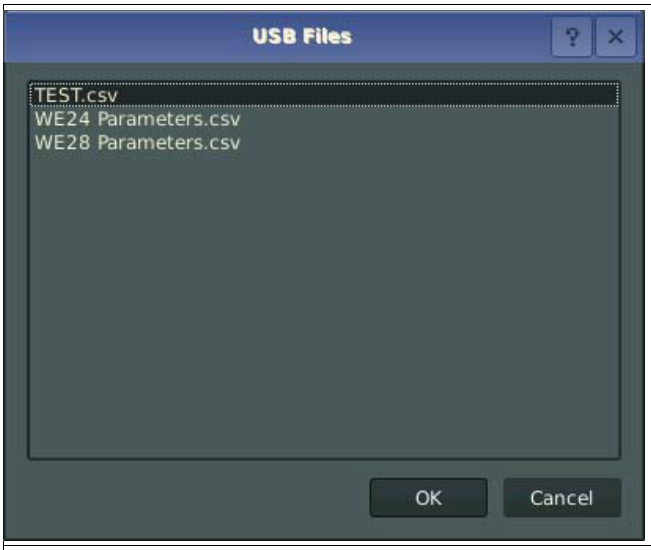


Fig. 1.16 File Import USB Flash Disk File Listing Window

- Select the parameter file to import into the database by pressing the up-down direction keypads.
- Press the “Confirmation/OK” keypad.
- The “OK” software button will be selected on the “USB Flash Disk File Listing Window”. Press the “Confirmation/OK” keypad again to import the parameters.
- The “Import Operation Success” informational sliding message bar will be displayed and the parameter settings will be copied and applied into the database.

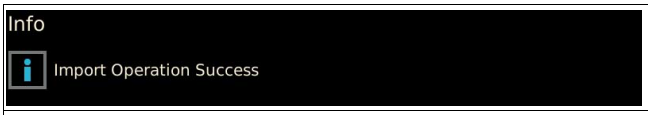


Fig. 1.17 “Import Operation Success” Informational Sliding Message Bar

NOTE

Your current set of parameters will be irreversibly changed by the imported parameters. If you want to be able to switch back to your former parameter set then you should first create a copy of your current set of parameters by exporting them to a USB flash disk.

1.8. DIAGNOSTICS WINDOW

Fig. 1.18 Diagnostics Window

No	Description
1	Digital Inputs Frame
2	Digital Outputs Frame
3	Analog Inputs Frame
4	Drum Rotation Speed Frame
5	Drum RPM Setting Software Button
6	Exit Software Button
7	Memory Type Indicator
8	Active Digital Input Indicator
9	Inactive Digital Input Indicator

Table 1.9 Diagnostics Window Components

The “Diagnostics” window is used for diagnostics of the input and output signals of the controller. You can monitor digital and analog inputs and force output values to check and compare them with real metering values and control functions of various components.

The digital input and digital output names and their physical terminal assignments on the “Diagnostics” window may change based on the model and options of the machine.

1.8.1. Digital Inputs

“Active” (*“Normally Open” or manually activated*) digital inputs will be designated on the “Digital Inputs” box with a green colored box whereas “Inactive” (*“Normally Closed” or manually deactivated*) digital inputs will be designated on the “Digital Inputs” box with a gray colored box. Refer to items number 8 and 9 in *"Diagnostics Window"* figure **(Fig. 1.18)** on page 18.

Most of the digital inputs are being triggered by mechanical, optical or membrane type switches such as the “Door Lock Switch”, “Detergent Drawer in Position Switch” etc. You can physically access most of these switches and mechanically activate them to check the **signal transmission** from the switch to the controller by observing the activation status of the digital input box on the window.

There are a few digital inputs which can only be checked by short circuiting cables or adding-removing cables.

1.8.2. Digital Outputs

Most of the digital outputs do become continually active when turned on and stay active until the user deactivates them. There are a few digital outputs which can only be activated for 2 seconds because of possible risks to the components and to the machine. These digital outputs are:

- Door Open
- Door Close
- Heater

The “Door Open” and “Door Close” digital outputs do power on the coils of the door lock which can get damaged in case of a continuous voltage supply on the small washer models. The full activation of the door lock coils does take at least 7 seconds on these models. Therefore you have to activate these signals 3-4 times in a row to be able to actually open/close the door lock via the “Diagnostics” window for the small washer models.

The “Heater” digital output does power on the electrical heaters which do need to transfer their heat to the water in the drum. Their activation duration on the “Diagnostics” window is limited to 5 seconds to protect them from overheating and getting damaged because of lack of water in the drum during a diagnostics session.

Unassigned digital outputs can also be activated to check the actual activation of the physical terminal on the controller.

The procedure to activate the "Digital Outputs"

The cursor will be on the first digital output DO1 in the "Digital Outputs" frame when the "Diagnostics" window is opened. DO1 will be selected and directly be able to be activated by pressing the "Confirmation/OK" keypad.

- Select a digital output by pressing the direction keypads. A selected digital output will be designated with a box frame which is colored "blue".
- Activate the selected digital output by pressing the "Confirmation/OK" keypad. The color of the digital output number will be highlighted in "red" color when a digital output is activated by pressing the "Confirmation/OK" keypad. The actual (*physical*) output terminal of the activated digital output will put out a digital "1" signal.

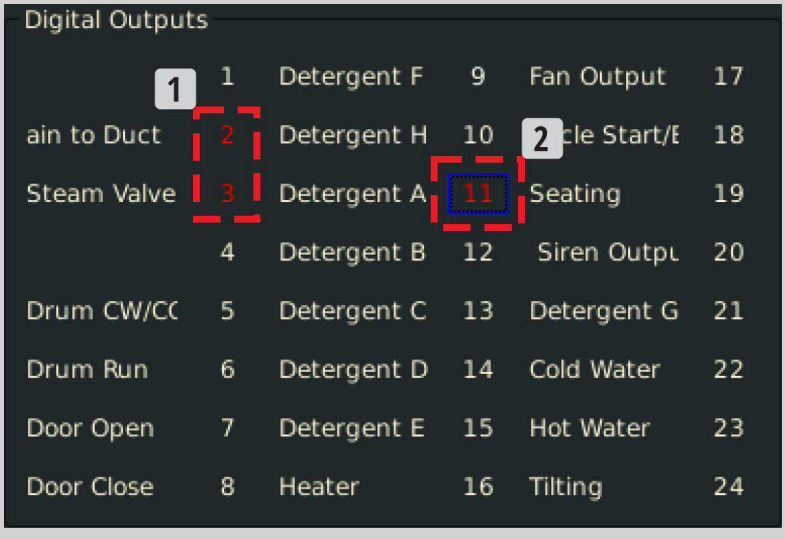


Fig. 1.19 Digital Outputs Frame on the Diagnostics Window

No	Description
1	Activated Digital Outputs
2	Selected and Activated Digital Output

Table 1.10 Digital Outputs Frame Components

In this case the digital "1" signal has to be measured with a voltmeter. The measured value has to be +24V because the outputs are using the NPN scheme.

The only difference for the digital outputs are the "door lock open" and "door lock close" outputs. One of these outputs is utilizing the NPN scheme whereas the other one utilizes the PNP scheme. One of the multimeter probes has to be touched to the negative rail.

Drum Rotation Control

2 digital outputs have to be activated to rotate the drum during a diagnostics session. First the "Drum Run" output has to be activated and then also the direction of the rotation has to be signaled (*Clockwise or Counter Clockwise*). The "Drum Run" signal is always being automatically activated when the "Diagnostics" window is opened and is automatically being deactivated when the "Diagnostics" window is closed. Deactivating the "Drum Run" signal during a diagnostics session is not possible. Pressing the "Confirmation/OK" keypad when the "Drum Run" digital output is selected won't change the status of the signal.

Pressing the "Emergency Stop Button" will cut off all of the digital signals in and out of the controller. This behavior will be displayed on the "Diagnostics" window. You still can select the digital outputs and press the "Confirmation/OK" keypad but no output will be activated.

DANGER

Releasing the "Emergency Stop Button" will automatically start to rotate the drum again if you first rotate the drum and then pause the action by pressing the "Emergency Stop Button". Hang a sign onto the "Emergency Stop Button" to mark this special occasion during a diagnostics session to secure people around the machine.

The procedure to rotate the drum

- Press the “Menu” keypad and open the “Main” menu.
- Select the “Service” software button on the “Main” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Service” menu.
- Select the “Diagnostics” software button on the “Service” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Diagnostics” window.
- Select the “Drum CW/CCW” (*DO5*) digital output by pressing the direction keypads.
- Press the “Confirm/OK” keypad to activate the “Drum CW/CCW” (*DO5*) digital output.
- The drum will start to rotate in the clockwise direction.
- Press the “Confirm/OK” keypad again to stop the drum whilst the “Drum CW/CCW” (*DO5*) digital output is selected.

  The drum will change its rotation direction when you activate the “Drum CW/CCW” (*DO5*) digital output again. The rotation direction of the drum will change each time you stop the drum and activate the DO5 digital output.

The procedure to change the rotation speed of the drum

The drum rotation speed can be changed before or after activating the drum. The change in the rotation speed value will be applied immediately when the drum is rotating.

The set RPM value won’t be saved and will be reset to its default value when exiting the Diagnostics window.

- Press the “Menu” keypad and open the “Main” menu.
- Select the “Service” software button on the “Main” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Service” menu.
- Select the “Diagnostics” software button on the “Service” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Diagnostics” window.
- Press the **M4** memory shortcut keypad (*which corresponds to the “RPM” software button*) to activate the “Drum Rotation Speed Box”.
- You can change the drum speed value by pressing the up-down direction keypads and press the “Confirmation/OK” keypad to set a specific drum speed. The limits for the drum rotation value are between 25 rpm and 100 rpm.

DANGER

The drum should never be rotated when the loading door is open. Doing so could result in serious injury.

Only authorized and trained technicians should use the “Diagnostics” window.

Hang a warning sign which informs about the rotating parts at the back of the machine if the backplate is open during a drum run testing process for servicing. You must be in control of the machine surroundings when servicing the machine.

1.8.3. Analog Inputs

There are 2 sensors which do communicate with the controller via analog signals. These are the “Temperature Sensor” and the “Water Level Sensor”. The Loadcell sensors which read the weight value via an analog method do send these values digitally via the Modbus channel. The weight values are also being presented in the “Analog Inputs” box as a convenience to the user to keep all of the non-binary reading values in a single area.

The analog inputs will display the water height value in the drum via the pressure value which is being read by the pressure sensor located at the back of the control panel and the water temperature value which is being read by the temperature sensor located between the inner and outer drum. Both of these sensors do send these reading values as analog signals.

Fig. 1.20 Analog Inputs Frame on the Diagnostics Window

1.8.4. Memory Type Indicator

The code at the end of the “Diagnostics” window title represents the memory type of the controller which could be asked by an authorized service company for remote diagnostics purposes. In that case you have to inform the service company of this code. Refer to item 7 in *"Diagnostics Window"* figure **(Fig. 1.18)** on page 18 to see an actual example of the “Memory Type Indicator”.

There are 2 code variants:

- SF
- TF

1.9. I/O LINK

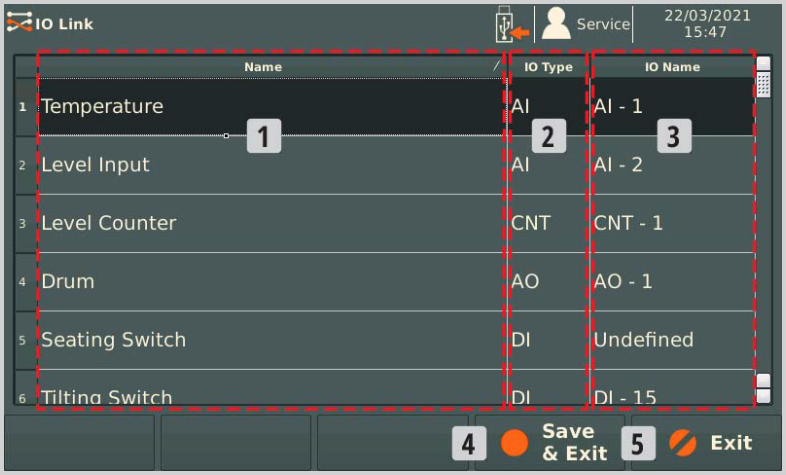


Fig. 1.21 I/O Link Window

No	Description
1	I/O Name Box
2	I/O Type Box
3	I/O ID Box
4	Save&Exit Software Button
5	Exit Software Button

Table 1.11 I/O Link Window Components

The "I/O Link" window contains the list of all types of I/O assignments of the signal inputs and signal outputs of the machine. You can also reassign the digital signals to different I/O terminals on the back of the controller. Analog signals cannot be reassigned.

AI	**A**nalog **I**nput
AO	**A**nalog **O**utput
DI	**D**igital **I**nput
DO	**D**igital **O**utput

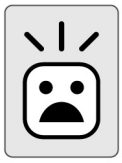
Table 1.12 Explanations of the I/O Type Abbreviations

DANGER

The assignment of the "Emergency Stop Button" must never be changed. The malfunction of the "Emergency Stop Button" may have fatal consequences.

IMPORTANT

The physical wiring also needs to be changed when reassigning digital inputs and digital outputs in software. Check the additional wiring diagram which is supplied with the manual before proceeding with this step.



WARNING

Only qualified service technicians should interfere with I/O link settings. This action can cause both serious injuries to the operators and irreparable damage to the machine and will void the warranty.

The Procedure to Reassign Digital I/O Assignments

This procedure consists of 3 main stages:

- The reassignment operation on the controller software
- The physical reassignment operation of the wires
- The verification operation to check the reassigned signals

These stages will be explained below with a hypothetical reassignment scenario where we will reassign the "AC Drive Fault" digital input from its factory default DI-8 terminal to the DI-2 terminal on a MWS65 model machine.

The reassignment operation on the controller software

- Login as an authorized user.
- Press the "Menu" keypad and open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Service" menu.
- Select the "I/O Link" software button on the "Service" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "I/O Link" window.
- Select the "AC Drive Fault" item on the I/O list by pressing the direction keypads. The up-down direction keypads let you browse the list one item per keypad press whereas the left-right direction keypads let you browse the list 6 items per keypad press.
- Press the "Confirmation/OK" keypad. The I/O ID box on the "AC Drive Fault" row will become active. Its factory default I/O ID value of "DI-8" will change to "Undefined".

Fig. 1.22 Activated I/O ID Box

- Select "DI-2" by browsing the available and unassigned digital input ID values with the up-down direction keypads.
- Press the "Confirmation/OK" keypad to set the selected I/O ID to the "AC Drive Fault" digital input.
- Press the **M4** memory keypad (*which corresponds to the "Save&Exit" software button*) to save your changes into the database of the controller.

The physical reassignment operation of the wires

The procedure of physical reassignment of the wires is carried out on the terminal sockets at the back of the controller. This operation has to be carried out by authorised personnel.

The wires of some inputs and outputs are not directly connected onto the sockets at the back of the controller. Such terminals are being terminated on the terminal boxes which are located at the back of the machine in the XL models and at the top of the machine in the small models. The physical reassignment of such wires also has to be carried out vy aithorised personnel.

The verification operation to check the reassigned signals

The authorised personnel has to check the reassigned I/O signals on the "I/O Link" window to approve that signals have been changed. Also the input and/or outputs signals have to be checked. You should request a final report from the authorised personnel about the verification checks.

1.10. DETERGENT DEFINITIONS

Fig. 1.23 Detergent Definitions Window

No	Description
1	Detergent Box Name Box / Chemical Pump Name Box
2	Pump Factor Value Box
3	Export Detergent Definitions Software Button
4	Import Detergent Definitions Software Button
5	Save&Exit Software Button
6	Exit Software Button

Table 1.13 Detergent Definitions Window Components

The "Detergent Definitions" window contains the list of the external detergent box (*a.k.a. chemical pump*) signal outputs and their corresponding "Pump Factor" values in "ml/sec" unit which are utilized to activate the external detergent valves for the set amount of time in programs. These definitions will only become effective when the "Weight based Measurement" method is activated in the parameters.

The signal duration of each separate external detergent valve during program execution will be calculated and applied based on the weight of the load, on the pump factor set in this window and on the detergent flow amount set by using the "Expert Mode" in the "Detergent" subphase of a program.

The unit of the pump factor will change to "Fluid Ounce / Second" (*fl oz / sec*) when you switch the "Unit Type" to the "American Units".

The procedure to edit the detergent definitions

You can enter detergent box names up to 10 digits long and pump factor values up to 3 digits long.

- Login as an authorized user.
- Press the "Menu" keypad and open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Service" menu.
- Select the "Detergent Definitions" software button on the "Service" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Detergent Definitions" window.
- Select the detergent box name on the list by pressing the up-down direction keypads. Select the part to edit by pressing the left-right direction keypads (*"Detergent Box Name" or "Pump Factor Value"*).
- Press the "Confirmation/OK" keypad. The selected part on the row will become active. The cursor will blink on the leftmost digit of the active section.
- Edit the value of the digits by pressing the up-down direction keypads and change the digits by pressing the left-right direction keypads.
- Press the "Confirmation/OK" keypad to save your modifications.
- Press the **M4** memory keypad (*which corresponds to the "Save&Exit" software button*) to save your changes into the database.

The procedure to export the detergent definitions

- Insert a USB flash disk into the USB port on the panel. The USB flash disk should have enough empty space on it to save the detergent definitions.
- Press the "Menu" keypad and open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Service" menu.
- Select the "Detergent Definitions" software button on the "Service" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Detergent Definitions" window.
- Press the **M2** memory keypad (*which corresponds to the "Export Det." software button*) to open the "File Export Filename Entry" dialog box.

Fig. 1.24 File Export Filename Entry Dialog Box

- Enter a name for the detergent definitions export file into the filename entry box and press the "Confirmation/OK" keypad. Press the up-down direction keypads to change the character on a specific digit and press the left-right direction keypads to change the digit place. The filename can be at most 15 characters long.
- The "Export Operation Success" informational sliding message bar will be displayed and the detergent definition data will be copied to the USB flash disk with the specified filename.

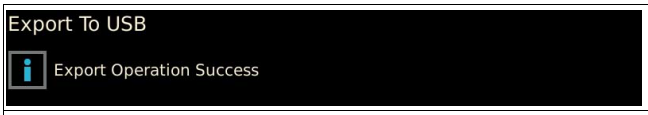


Fig. 1.25 "Export Operation Success" Informational Sliding Message Bar

The procedure to import the detergent definitions

- Insert a USB flash disk which has the exported set of detergent definition data into the USB port on the panel.
- Press the "Menu" keypad and open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Service" menu.
- Select the "Detergent Definitions" software button on the "Service" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Detergent Definitions" window.
- Press the **M3** memory keypad (*which corresponds to the "Import Det." software button*) to open the "USB Flash Disk File Listing" window. The detergent definition files stored on the USB flash disk will be listed.

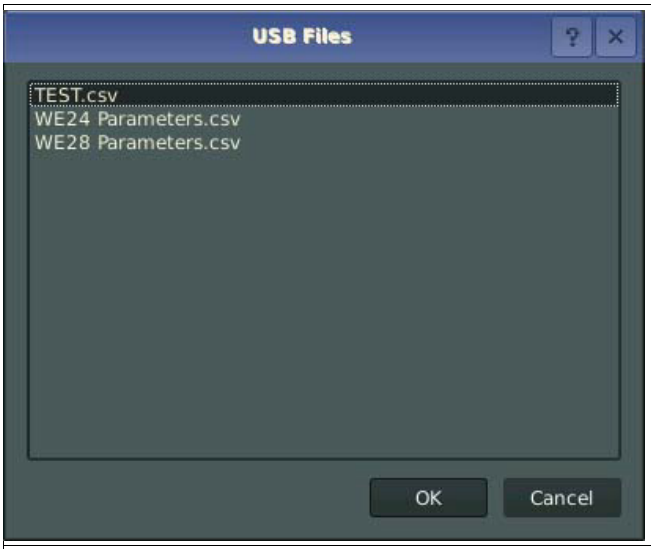


Fig. 1.26 File Import USB Flash Disk File Listing Window

- Select the target detergent definition file to import by pressing the up-down direction keypads.
- Press the "Confirmation/OK" keypad.
- The "OK" software button will be selected on the "USB Flash Disk File Listing" window. Press the "Confirmation/OK" keypad again to import the detergent definitions.
- The "Import Operation Success" informational sliding message bar will be displayed and the detergent definition settings will be copied and applied into the database.

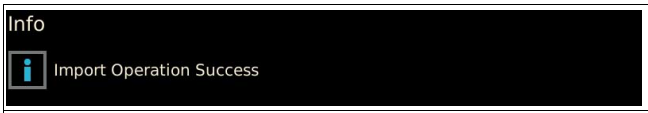


Fig. 1.27 "Import Operation Success" Informational Sliding Message Bar

NOTE

Your current set of detergent definitions will be irreversibly changed by the imported detergent definitions. If you want to be able to switch back to your former detergent definition set then you should first create a copy of your current set of detergent definitions by exporting them to a USB flash disk.

1.11. STATISTICS

The “Statistics” menu contains 2 software buttons: The “Alarms Statistics” software button and the “Run Time Statistics” software button.

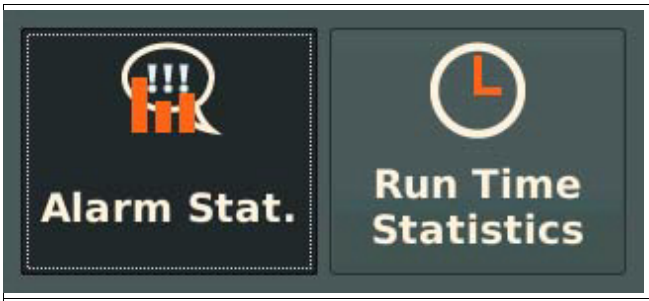


Fig. 1.28 Statistics Menu

1.11.1. ALARM STATISTICS (HISTORY)

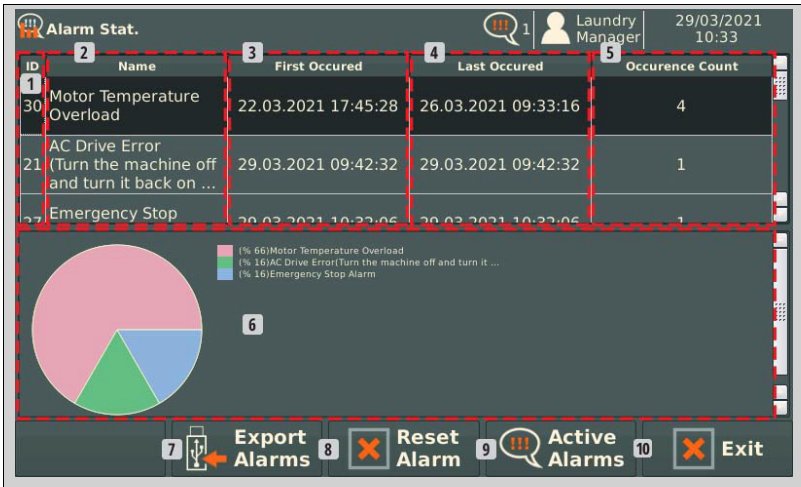


Fig. 1.29 Alarm Statistics Window

No	Description
1	Alarm ID Box
2	Alarm Name Box
3	Alarm First Occurrence Date-Time Box
4	Alarm Last Occurrence Date-Time Box
5	Alarm Occurrence Count Box
6	Alarm Type and Occurrence Count Pie Chart Box
7	Export Alarms Software Button
8	Reset Alarm Software Button
9	Active Alarms Software Button
10	Exit Software Button

Table 1.14 Alarm Statistics Window Components

The “Alarm Statistics” window includes a list which shows statistical and historical information about alarms since the last reset date-time of a particular alarm such as the ID and name of the alarm, the first and last occurrence date-time of the alarm and the occurrence count of the alarm. This window also includes a pie chart of occurred alarm types and their corresponding alarm counts.

The alarm list can be browsed by pressing the up-down direction keypads.

You can directly switch to the “Active Alarms” window by pressing the **M4** memory keypad (*which corresponds to the “Active Alarms” software button*).

The procedure to access the “Alarm Statistics” window

- Press the “Menu” keypad and open the “Main” menu.
- Select the “Service” software button on the “Main” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Service” menu.
- Select the “Statistics” software button on the “Service” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Statistics” menu.
- Select the “Alarm Statistics” software button on the “Statistics” menu by pressing the left-right direction keypads.
- Press the “Confirmation/OK” button to open the “Alarm Statistics” window.

The procedure to export the "Alarm Data (History)"

- Insert a USB flash disk into the USB port on the panel. The USB flash disk should have enough empty space on it to save the detergent definitions.
- Press the "Menu" keypad and open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Service" menu.
- Select the "Statistics" software button on the "Service" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Statistics" menu.
- Select the "Alarm Statistics" software button on the "Statistics" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Alarm Statistics" window.
- Press the **M2** memory keypad (*which corresponds to the "Export Alarms" software button*) to open the "File Export Filename Entry" dialog box.

Fig. 1.30 File Export Filename Entry Dialog Box

- Enter a name for the alarm history export file into the filename entry dialog box and press the "Confirmation/OK" keypad. Press the up/down direction keypads to change the character on a specific digit and press the left/right direction keypads to change the digit place. The filename can be at most 15 characters long.
- The "Export Operation Success" informational sliding message bar will be displayed and the alarm history will be copied to the USB flash disk with the specified filename.

Fig. 1.31 "Export Operation Success" Informational Sliding Message Bar

The procedure to reset (delete) the "Alarm Data (History)"

Resetting an alarm means deleting its statistical and historical data from the alarm list. Also alarms which don't disappear from the "Active Alarms List" by simply reversing the condition which caused them, can only be removed from this list by resetting (*deleting*) their data on the "Alarm Statistics" list.

- Press the "Menu" keypad and open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Service" menu.
- Select the "Statistics" software button on the "Service" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Statistics" menu.
- Select the "Alarm Statistics" software button on the "Statistics" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Alarm Statistics" window.
- Select the alarm name to reset on the list by pressing the up-down direction keypads.
- Press the **M3** memory keypad (*which corresponds to the "Reset Alarm" software button*) to reset the alarm and delete it from the list. If the alarm is also present on the "Active Alarms" list then it will also be removed from the "Active Alarms" list (*if the condition which caused the alarm has been fixed*).

1.11.2. RUN TIME STATISTICS

Fig. 1.32 Run Time Statistics Window

The “Machine Run Time” row displays the total duration of all programs which were executed since the machine has left the factory.

The “Machine Power On Time” row displays the total duration of the power on duration of the controller since the machine has left the factory.

These values can’t be reset by factory resetting the controller.

The “Run Time Statistics” window can be closed by pressing the “Confirmation/OK” keypad.

The procedure to access the “Run Time Statistics” window

- Press the “Menu” keypad and open the “Main” menu.
- Select the “Service” software button on the “Main” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Service” menu.
- Select the “Statistics” software button on the “Service” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Statistics” menu.
- Select the “Run Time Statistics” software button on the “Statistics” menu by pressing the left-right direction keypads.
- Press the “Confirmation/OK” keypad to open the “Run Time Statistics” window.

1.12. FACTORY

The “Factory” window is used for various purposes regarding the crucial settings of the machine and the controller. Some of the use cases for the “Factory” window are listed below and explained in detail in the **1.12.3.** *"FACTORY WINDOW USE CASES"* section on page 33.

- Checking and modifying basic machine related parameter and I/O settings
- Reverting various settings of the controller to their factory default settings
- Modifying the settings related to newly installed (*activated, deactivated, connected or removed*) machine options
- Programming a newly installed AC Drive according to your current machine settings
- Installing a controller onto a different machine

Some of these scenarios and their procedures will be explained in this section.

The “Factory” window has 2 sub-windows in it which have to be sequentially viewed in order to finish a factory reset operation. These sub-windows are “Machine Setup Options” and “Factory Reset Options”. The “Machine Setup Options” sub-window is initially displayed when the “Factory” software button is pressed.

The procedure to access the “Factory” window

- Login as an authorized user which has access rights to the “Factory” window.
- Press the “Menu” keypad and open the “Main” menu.
- Select the “Service” software button on the “Main” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Service” menu.
- Select the “Factory” software button on the “Service” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Factory” window.

1.12.1. MACHINE SETUP OPTIONS

Fig. 1.33 Factory - Machine Setup Options Window

No	Description
1	Factory / Machine Setup Options Window Title
2	Multiple Choice Parameters Frame
3	Single Choice Parameters Frame
4	Unselected Multiple Choice Option Box
5	Selected Multiple Choice Option Box
6	Selected Single Choice Option Box
7	Disabled Single Choice Option Box
8	Enabled Single Choice Option Box
9	Confirm Machine Setup Options Software Button
10	Exit Software Button

Table 1.15 Factory - Machine Setup Options Window Components

The setup options being presented on this window do either modify a system parameter or an I/O link assignment.

The multiple choice parameters frame includes settings/options which do have more than one choice to select from. The first option (*Machine Model*) on this box will automatically be selected when the “Machine Setup Options” window is opened. The single choice parameters frame includes settings/options which can either be enabled or be disabled. You can navigate between these settings by pressing the up-down direction keypads. A selected multi choice setting/option will be highlighted with a red dotted frame around the options box. A selected single choice setting/option will be highlighted with a black colored background on the single choice options frame.

The procedure to modify a multiple choice option on the "Machine Setup Options" window

- Press the up-down direction keypads to select the option.
- Press the "Confirmation/OK" keypad to open the list of values.

Fig. 1.34 Contents of the "Heating Type" Multiple Choice Option List in Active/Opened Mode

- Press the up-down direction keypads to select a specific value from the value list.
- Press the "Confirmation/OK" keypad to set the selected value to the option.

  The cursor will skip to the next multiple choice option.

  The cursor will skip to the next single choice option if you are on the last multiple choice option on the list.

The procedure to modify a single choice option on the "Machine Setup Options" window

- Press the up-down direction keypads to select the option.
- Press the "Confirmation/OK" keypad to enable or to disable the option. An already enabled option will be disabled and vice versa.

1.12.2. FACTORY RESET OPTIONS

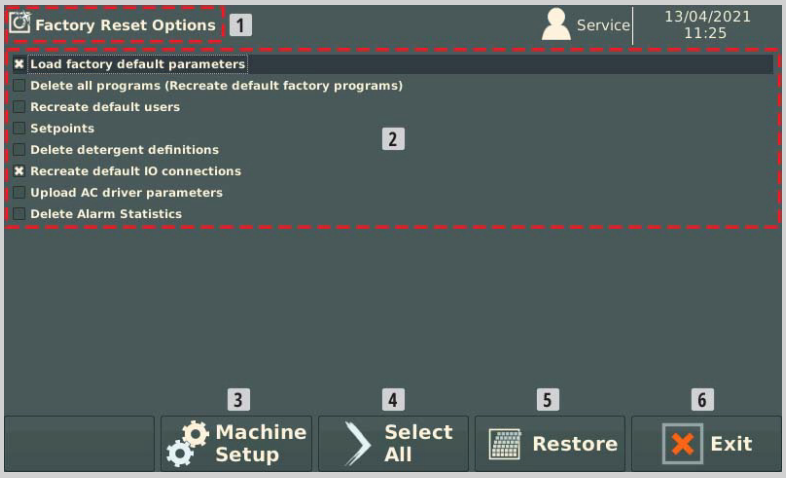


Fig. 1.35 Factory - Factory Reset Options Window

No	Description
1	Factory / Factory Reset Options Window Title
2	Single Choice Options List
3	Revert to Machine Setup Options Window Software Button
4	Select All of the Options Software Button
5	Restore/Reset Settings Software Button
6	Exit from The Factory Menu Software Button

Table 1.16 Factory - Factory Reset Options Window Components

The options on this window do set which database sections are going to be reset and also has an option to send the selected parameters to the AC Drive unit. You can select different sets of the reset options based on your goal.

The options on this window are all single choice options which can either be enabled or be disabled. You can navigate between these options by pressing the up-down direction keypads. A selected single choice setting/option will be highlighted with a black colored background on the options box.

The procedure to modify the single choice options on the "Factory Reset Options" window

- Press the up-down direction keypads to select the option.
- Press the "Confirmation/OK" keypad to enable or to disable the option. An already enabled option will be disabled and vice versa.

The procedure to reset (restore) the database

The selected setup options on the "Machine Setup Options" window and the selected reset options on the "Factory Reset Options" window will be set and/or executed when the **M4** keypad (*which corresponds to the "Restore" software button*) on the "Factory Reset Options" window is pressed.

- Press the **M4** keypad (*which corresponds to the "Restore" software button*) to start the factory reset procedure.
- A confirmation dialog box will be displayed. The message of the confirmation message will differ based on the selection of the "Upload AC Drive parameters" option.

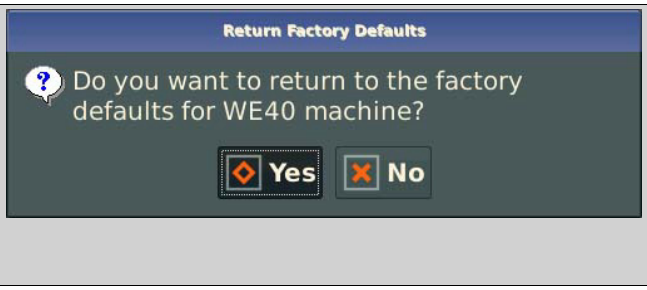


Fig. 1.36 Regular Factory Reset Operation Confirmation Dialog Box

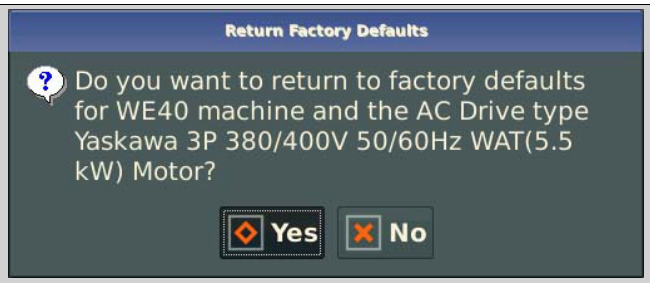


Fig. 1.37 Factory Reset with AC Drive Operation Confirmation Dialog Box

The regular factory reset operation confirmation message only warns about reverting to the factory default values for the selected database sections.

The factory reset with AC Drive operation confirmation message does additionally warn about resetting of the AC Drive parameters to their factory default values. The controller software will also send the parameters which are based on the **"AC Drive, Voltage, Frequency and Motor Selection"** option on the "Machine Setup Options" window to the AC Drive and reset it.

- Select the "Yes" software button by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to confirm the message.
- A sliding message bar with the message *"Factory values have been loaded. Device will restart."* which includes a countdown timer will be displayed.

Fig. 1.38 "Factory Reset Restart" Warning Sliding Message Bar

- The controller will be turned off when the countdown ends.
- The controller will be restarted with the selected options and database operations.

1.12.3. FACTORY WINDOW USE CASES

The "Factory" window is used to achieve various resetting, restoring functions. These include (*but are not limited to*) the following operations:

- Modifying basic machine related parameters and I/O settings (*Some of these parameters can not be set on the "Parameters" window*)
- Reverting various settings of the controller to their factory default settings
- Modifying the settings related to newly installed (*activated, deactivated, connected or removed*) machine options
- Programming a newly installed AC Drive according to your current machine settings
- Installing a controller onto a different machine

The procedures to accomplish these operations will be explained in the following sections.

The procedure to modify basic machine related parameters and I/O settings

The advantage of these settings being presented on the "Factory" window is attaining an overview of all of them on the same window. This provides you both a quick access method to these settings and also enables you to compare them in different combinations.

- Login as an authorized user which has access rights to the "Factory" window.
- Press the "Menu" keypad and open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Service" menu.
- Select the "Factory" software button on the "Service" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Factory" window.
- Modify the settings and options on the "Machine Setup Options" window.
- Press the **M4** keypad (*which corresponds to the "Confirm" software button*) to switch to the "Factory Reset Options" window.
- Select and enable the "Load factory default parameters" option.
- Select and enable the "Recreate default IO connections" option.
- Select and enable the "Upload AC driver parameters" option if you did change the "AC Drive, Voltage, Frequency and Motor selection" option on the "Machine Setup Options" window.
- Select and enable any of the other options if you also need to reset their related values.
- Press the **M4** keypad (*which corresponds to the "Restore" software button*).
- Press the "Confirmation/OK" keypad on the "Return Factory Defaults" dialog box to restart the controller with the new settings.

The procedure to revert various settings or values of the controller to their factory defaults

You can also only revert settings or values such as programs, users, detergent definitions, alarm statistics, program setpoints to their factory default values.

- Login as an authorized user which has access rights to the "Factory" window.
- Press the "Menu" keypad and open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Service" menu.
- Select the "Factory" software button on the "Service" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Factory" window.
- Press the **M4** keypad (*which corresponds to the "Confirm" software button*) to directly switch to the "Factory Reset Options" window.
- Select any of the options which you want to reset to their factory defaults such as programs, users, detergent definitions, alarm statistics, program setpoints.

- Press the **M4** keypad (*which corresponds to the "Restore" software button*).
- Press the "Confirmation/OK" keypad on the "Return Factory Defaults" dialog box to restart the controller with the new settings.

The procedure to modify the settings related to newly installed (activated, deactivated, connected or removed) machine options

Follow the same procedure as *"The procedure to modify basic machine related parameters and I/O settings"* procedure on page 33.

The only exception here is that if you did not alter any of the parameters or the I/O settings then you can only select the applicable option on the "Factory Reset Options" window (*such as only the "Load factory default parameters" option or the "Recreate default IO connections" option*) to complete the procedure.

The procedure to program a newly installed AC Drive according to your current machine settings

- Login as an authorized user which has access rights to the "Factory" window.
- Press the "Menu" keypad and open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Service" menu.
- Select the "Factory" software button on the "Service" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Factory" window.
- Press the **M4** keypad (*which corresponds to the "Confirm" software button*) to directly switch to the "Factory Reset Options" window.
- Select and enable the "Upload AC driver parameters" option.
- Press the **M4** keypad (*which corresponds to the "Restore" software button*).
- Press the "Confirmation/OK" keypad on the "Return Factory Defaults" dialog box to restart the controller with the new settings.
- When the controller restarts you also must power off the machine and power it on again for the AC Drive to start using the newly uploaded parameters.

The procedure to install a controller onto a different machine

Make sure that an AC Drive unit which is approved and provided by the manufacturer is installed on the machine.

- Login as an authorized user which has access rights to the "Factory" window.
- Press the "Menu" keypad and open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Service" menu.
- Select the "Factory" software button on the "Service" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Factory" window.
- Edit the settings and options according to the options of the machine on the "Machine Setup Options" window.
- Press the **M4** keypad (*which correspond to the "Confirm" software button*) to switch to the "Factory Reset Options" window.
- Directly press the **M3** keypad (*which corresponds to the "Select All" software button*) on the "Factory Reset Options" window.
- Press the **M4** keypad (*which corresponds to the "Restore" software button*).
- Press the "Confirmation/OK" keypad on the "Return Factory Defaults" dialog box to restart the controller and the AC Drive with the new settings.
- If the AC Drive was a newly installed unit then after the controller restarts you also must power off the machine and power it on again for the AC Drive to start using the newly uploaded parameters.

1.13. PROGRAM FUNCTIONS

The controller software has functions which are used to create, copy, export, import, edit and delete programs. All of these functions are directly accessible from the "Main" menu. You need to login as an authorized user to be able to use these functions. The first 16 programs (*The factory default programs*) can't be edited or deleted unless the "Factory Programs Editing Permission" parameter (*Parameter number 118*) has been enabled.

1.13.1. COPYING PROGRAMS

Copying a program creates an exact same copy of the program on a different program number. This function can either be used to create a template program copy to be modified or to create a copy of a program to be used in a customer/batch based laundry workflow where specific copies of programs are used to designate specific customers/batches.

The procedure to copy programs

- Login as an authorized user.
- Select the source program to copy on the "Program Selection" window by pressing the direction keypads.
- Press the "Menu" keypad and open the "Main" menu.
- Select the "Copy Program" software button by pressing the direction keypads.
- Press the "Confirmation/OK" keypad.
- The "Copy Program" dialog box will be displayed. This dialog box automatically displays the selected source program number and has an active cursor in the program number cell for the target program (Refer to *"Copy Program Dialog Box"* figure **(Fig. 1.39)** on page 35).

Fig. 1.39 Copy Program Dialog Box

- Select the number of the target program in the "Target Program No" entry cell by pressing the direction keypads. The up-down direction keypads let you change the number by "1" per keypad press whereas the left-right direction keypads let you change the number by "10" per keypad press.
- Press the "Confirmation/OK" keypad to copy the program to the target program number.
- The target program with its new sequence number will be selected on the "Program Selection" window when the copy operation is completed.
- If the target program number is not an empty program then a warning dialog box with the message *"Destination is not empty. Do you want to overwrite it?*" will be displayed.
- Select the "Yes" software button by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to apply your selection. This process cannot be reverted so if you may need to use the overwritten program in the future then you should first export it to create a backup copy of it.

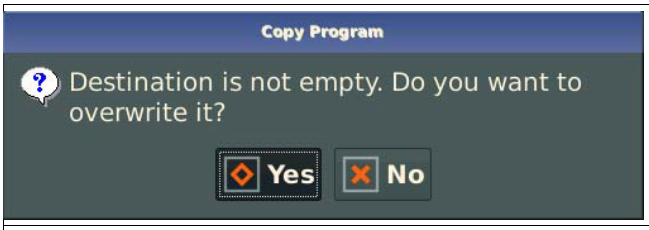


Fig. 1.40 Program Overwrite Warning Dialog Box During Program Copy

1.13.2. DELETING PROGRAMS

Deleting a program deletes both the name of the program and its phases and creates an empty program number. A program which doesn't have any phases in it but has a name is not an empty program and such a program can still be deleted.

The procedure to delete programs

- Login as an authorized user.
- Select the target program to delete on the "Program Selection" window by pressing the direction keypads.
- Press the "Menu" keypad and open the "Main" menu.
- Select the "Delete Program" software button by pressing the direction keypads.
- Press the "Confirmation/OK" keypad.

Fig. 1.41 Program Delete Confirmation Dialog Box

- A confirmation dialog box with the message "*Are you sure that you want to delete this program?*" will be displayed. This message includes the program number and name in brackets at the end of the text (Refer to *"Program Delete Confirmation Dialog Box"* figure **(Fig. 1.41)** on page 36).
- Select the "Yes" software button by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to apply your selection. This process cannot be reverted so if you may need to use the deleted program in the future then you should first export it to create a backup copy of it.

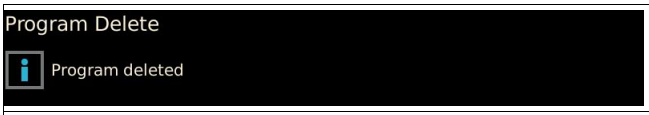


Fig. 1.42 Program Deletion Informational Sliding Message Bar

- The "Program Deleted" informational sliding message bar will be displayed. The empty program number which has been deleted will be selected on the "Program Selection" window (Refer to *"Program Deletion Informational Sliding Message Bar"* figure **(Fig. 1.42)** on page 36).

1.13.3. EXPORTING PROGRAMS

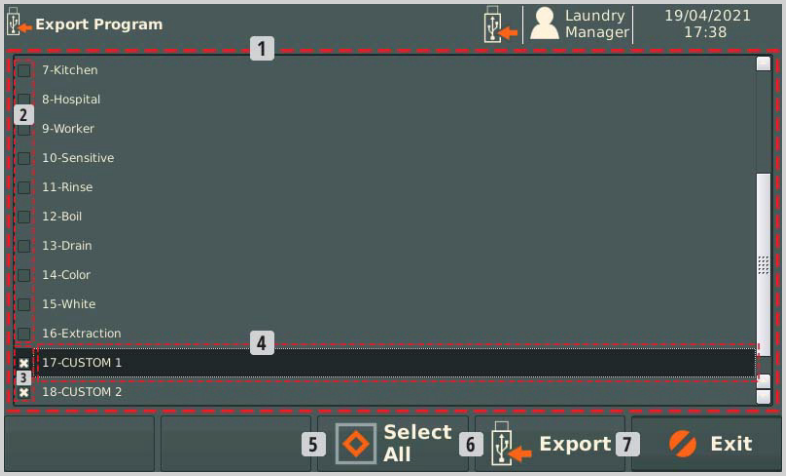


Fig. 1.43 Export Programs Window

No	Description
1	Program List
2	Unchecked Programs
3	Checked Programs
4	Selected Program
5	Select All Programs Software Button
6	Export Software Button
7	"Exit from Window" Software Button

Table 1.17 Export Programs Window Components

Programs may be exported to back them up, to copy them to another machine or to create template programs. The exported programs will be created as csv (*comma separated values*) formatted files. The names of the files will be the same as they are displayed on the "Program List" in the "Export Program" window.

NOTE

If the name of a program file which is going to be exported is the same with an already existing program file on the USB flash disk then the existing program file will be written over without a warning by the controller software. You should arrange your former exported program files on the USB flash disk into folders before attempting an export operation.

The procedure to export programs

- Login as an authorized user.
- Insert a USB flash disk into the USB port on the front panel. You should see the "USB Memory Card Icon" on the Notification Bar. Also an informational sliding message bar indicating that the USB flash disk has been detected will be displayed.

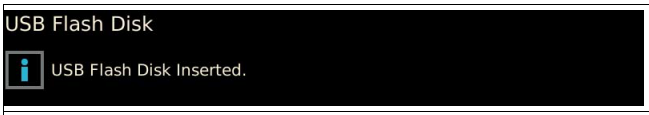


Fig. 1.44 USB Flash Disk Detection Informational Sliding Message Bar

- Press the "Menu" keypad and open the "Main" menu.
- Select the "Export Program" software button by pressing the direction keypads.
- Press the "Confirmation/OK" keypad.
- The "Export Program" window will be displayed.
- Select the programs to be exported by pressing the up-down direction keypads on the "Program List" and check them by pressing the "Confirmation/OK" keypad.
- If you want to select all of the programs on the list then press the **M3** memory keypad (*which corresponds to the "Select All" software button*).
- Press the **M4** memory keypad (*which corresponds to the "Export" software button*) to export the selected programs to the USB flash disk.
- The "Export Program To USB / Export Operation Success" informational sliding message bar will be displayed.

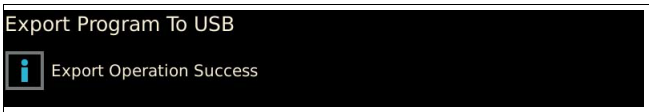


Fig. 1.45 "Program Export Operation Success" Informational Sliding Message Bar

1.13.4. IMPORTING PROGRAMS

Fig. 1.46 Import Programs Window

No	Description
1	Program List
2	Unchecked Programs
3	Checked Programs
4	Selected Program
5	Select All Programs Software Button
6	Import Software Button
7	"Exit from Window" Software Button

Table 1.18 Import Programs Window Components

Programs may be imported to return to the original version of a program from its formerly backed up copy, to copy programs from another machine or to create a new program from a template program.

NOTE

The "Factory Programs Editing Permission" parameter (*Parameter number 118*) has to be enabled to be able to import programs corresponding to the factory program numbers (*The first 16 program numbers*).

Points to consider when importing programs from another machine

Programs can be exported and imported between different models but there are certain points to check before doing so.

- If the "Detergent Flushing Support" parameter (*Parameter number 144*) is set differently on the source and target machines then it has to be set the same as the source machine on the target machine.
- If a chemical dosing unit is connected to both source and target machines and the same chemicals are going to be used on them then the chemical intake settings (*Detergent Definitions*) should also be copied along with the programs. Make sure that the source machine and the target machine have the same pump factor values. Otherwise adjust accordingly.
- The chemical intake settings (*Detergent Definitions*) should be copied with the programs and be modified on the target machine before executing the programs if a chemical dosing unit is connected to both the source and the target machines but the same chemicals are not going to be used on them.
- The drainage method on the target machine's program has to be modified where the "Recycle Drain" option is being utilized if a program is copied between machines with recycle tanks and without recycle tanks.

The procedure to import programs

- Login as an authorized user.
- Insert a USB flash disk into the USB port on the front panel. The "USB Flash Disk Icon" (Refer to *USB Flash Disk Icon* item on page 4) will be displayed on the Notification Bar. Also an informational sliding message bar indicating that the USB flash disk has been detected will be displayed.

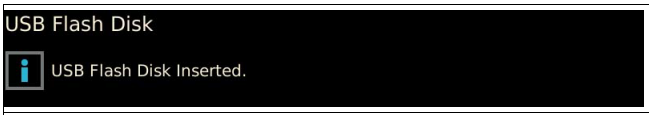


Fig. 1.47 USB Flash Disk Detection Informational Sliding Message Bar

- Press the "Menu" keypad and open the "Main" menu.
- Select the "Import Program" software button by pressing the direction keypads.
- Press the "Confirmation/OK" keypad.
- The "Import Program" window will be displayed.
- Select the programs to be imported by pressing the up-down direction keypads on the "Program List" and check them by pressing the "Confirmation/OK" keypad.
- If you want to select all of the programs on the list then press the **M3** memory keypad (*which corresponds to the "Select All" software button*).
- Press the **M4** memory keypad (*which corresponds to the "Import" software button*) to import the selected programs into the database.
- The "Import Program From USB / Import Operation Success" informational sliding message bar will be displayed.

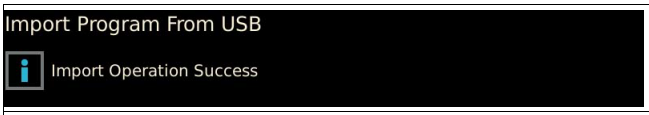


Fig. 1.48 "Program Import Operation Success" Informational Sliding Message Bar

1.13.5. EDITING PROGRAMS

The program editing window is used to create new programs or to modify existing programs.

Fig. 1.49 Program Editing Window

No	Description
1	Current Program Number, Program Name and Name of Selected Phase
2	Active Detergent Intake Mode
3	Program Phase Bar
4	Program Subphase List
5	Selected Subphase
6	Clear Phase Software Button
7	Simple/Expert Mode Switch Software Button
8	Save Changes and Exit Software Button
9	Exit Software Button

Table 1.19 Program Editing Window Components

States of the Phase Icons

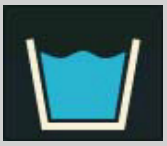
Icon	State	Explanation
	**Selected**	The phase being edited (**selected phase**) is represented with an icon in black background in addition to its current color.
	**Active**	The phases utilized in the current program (**active phases**) are represented with colored icons on a light gray background.
	**Passive**	The phases not utilized in the current program (**passive phases**) are represented with grayscale colored icons on a light gray background.

Table 1.20 Program Editing Window Phase Icon State Examples, Names and Explanations

The procedure to enter the "Program Editing" window

- Select a program on the "Program Selection" window by pressing the direction keypads (*or select an empty program number to create a new program*).
- Press the "Menu" keypad to open the "Main" menu.
- Select the "Edit Program" software button by pressing the direction keypads.
- Press the "Confirmation/OK" keypad.
- The "Program Name Entry/Edit" dialog box will be displayed.

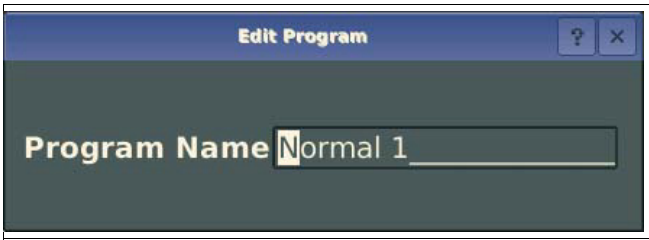


Fig. 1.50 Program Name Entry/Edit Dialog Box

- Enter a name (*or edit the existing name*) for the program in the "Program Filename Entry/Edit" dialog box and press the "Confirmation/OK" keypad. Press the up-down direction keypads to change the character on a specific digit and press the left-right direction keypads to change the digit place. The program name can be at most 30 characters long.
- The "Program Editing" window will be displayed.
  - Use the left-right direction keypads to switch between the Program Phases.
  - Use the up-down direction keypads to switch between the Subphases in a specific Program Phase.
  - To enter or edit a Subphase value, first select the subphase and then press the "Confirmation/OK" keypad.

NOTE

The first 16 programs are factory programs. Factory programs cannot be edited or deleted by unauthorized users.

The 118. system parameter has to be enabled to be able to edit or to delete them for the authorized users.

The procedure to edit the program subphases

- First select the phase of the target subphase on the "Program Phase Bar" using the left-right direction keypads. The first subphase "Water Intake" will always be automatically selected on the Subphase List.
- Select the subphase by pressing the up-down direction keypads.
- Press the "Confirmation/OK" keypad to switch to the subphase editing mode.

Interface Visualization Methods of Subphase Editing Options

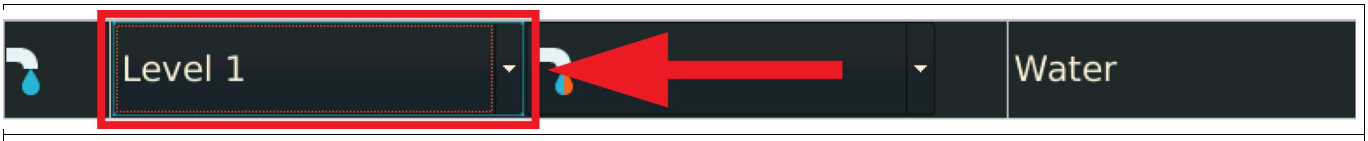


Fig. 1.51 Selected Picklist Box in Program Editing Window

Fig. 1.52 Detergent Box Subphase Options in Program Editing Window

No	Description
1	Checked Detergent Box
2	Unchecked Detergent Box
3	Selected Detergent Box

Table 1.21 Detergent Box Subphase Box Selection and Checking Methods

Fig. 1.53 Manual Value Entry Box in Program Editing Window

The Subphase editing window has 3 different methods to modify the options and values of the subphases.

- **Picklist boxes**, let you select one of the values from a list of options. The borders around the box will be highlighted with a red colored dotted frame when a picklist option box is selected. Pressing the up-down direction keypads will change the options in the selected picklist box. Pressing the "Confirmation/OK" keypad will apply your modification to the picklist and switch the selection to the next picklist or subphase. "Water Intake", "Drain" and "Extraction" subphases have picklist boxes.
- **Checkboxes** are only presented in the Detergent subphase. They present you with all of the detergent box options and let you check specific boxes among them. Pressing the left-right direction keypads will switch the selection between the detergent boxes. Pressing the "Confirmation/OK" keypad on a selected detergent box will check/uncheck the box. You have to press the down direction keypad to switch to the next "Temperature" subphase.
- **Manual value entry boxes** let you manually enter a numerical value for the selected subphase. The leftmost digit of the current value will blink when a manual value entry box is selected. Pressing the up-down direction keypads will change the numerical value by "1" per each key press and pressing the left-right direction keypads will change the numerical value by "10" per each key press. Pressing the "Confirmation/OK" keypad will apply your modification and switch the selection to the next subphase. "Temperature", "Washing Duration" and "Extraction" subphases have manual value entry boxes.

Water Intake Subphase

The "Water Intake" subphase has 2 sub-settings. The first sub-setting does change its functionality based on the "Level based Water Intake" and the "Ratio based Water Intake" methods.

The first sub-setting becomes a picklist which sets the **"water level"** in the drum in predefined levels for that specific phase when the **"Level based Water Intake"** method is being used. The water level height values are set in the factory which are being measured by checking the water level sensor at certain levels. Their values for specific machine models are set in the parameter numbers 13 to 18 (Water Level 1 to 6). These values are measured and set at sea level from the bottom of the water level sensor up to the water level observed on the loading door glass.

The first sub-setting becomes a numerical value entry box which sets the **"ratio"** for the water weight taken into the drum which is calculated based on the weight of the laundry loaded into the drum when the **"Ratio based Water Intake"** method is being used.

NOTE

Water intake levels for washing and rinsing phases are separately limited in system parameters.

The allowed maximum water intake level

- for all washing phases (Pre Wash, Extra Prewash 1-2-3, Main Wash) is defined in the 10. system parameter and,

- for all rinsing phases (Rinsing 1-2-3) is defined in the 11. system parameter.

The default value for all washing phases is "5" and for all rinsing phases is "6".

The second sub-setting is a picklist which sets the **"water intake valve"** used to take in water for that specific phase. All of the valve options can be selected but the controller will only activate the valves which are assigned to an actual digital output in the "I/O Link" settings.

Icon	Name	Explanation
	**Cold**	"Cold" activates the intake valve which is designated as "Cold Water" on the "IO Link" window.
	**Hot**	"Hot" activates the intake valve which is designated as "Hot Water" on the "I/O Link" window.
	**Mix**	When this valve type is selected then the software will initially activate the "Hot Water" valve. After a while the water temperature will be measured. If the measured water temperature is higher than the set temperature value then the "Hot Water" valve will be shut off and the "Cold Water" valve will be activated. After a while the water temperature measurement will be repeated and if the measured water temperature is lower than the set temperature value then the "Cold Water" valve will be shut off and the "Hot Water" valve will be activated. This procedure will be repeated until both the set "Water Level" and the set "Ratio" are reached.
	**Soft**	"Soft" activates the intake valve which is designated as "3rd Water Inlet Valve" on the "I/O Link" window.

Table 1.22 Water Valve Options, Icons and Explanations

The procedure to set/edit a water subphase in the "Level based Water Intake" mode

- Select the "Water" subphase by pressing the up-down direction keypads.
- Press the "Confirmation/OK" keypad to start editing the "Water Level" picklist.
- Select the target "Water Level" value by pressing the up-down direction keypads. Select the water intake level "0" to delete an existing water intake subphase. The "Level 0" option will completely skip the water intake subphase.

Fig. 1.54 Water Level Option box in the Water Intake Subphase

- Press the "Confirmation/OK" keypad to proceed to the "Water Valve" option box. You can directly skip to the "Water Valve" option box by pressing the left-right direction keypads without modifying the "Water Level" option.
- Select the target "Water Valve" value by pressing the up-down direction keypads.

Fig. 1.55 Water Valve Option box in the Water Intake Subphase

- Press the "Confirmation/OK" keypad to proceed to the next subphase.

Editing the water level in a "Ratio based" Water Subphase

The controller will present "Ratio based Water Intake" as a second water intake option when the laundry scale system is installed on the machine and activated in the parameters. The **"Intake Mode"** software button will be added to the memory/shortcut button bar of the "Program Editing" window which corresponds to the **M2** memory keypad.

NOTE

The "Ratio based Water Intake" won't be presented in the Program Editing Window if **only** the "Manual Weight Entry" parameter (*"Laundry Weight Support" option on the "Factory" window*) is activated because in that case the controller software won't be able to weigh the calculated water volume corresponding to the laundry weight.

Fig. 1.56 Program Editing Window with Intake Mode Software Button

No	Description
1	Edited Program Number, Name and Active Phase Name
2	Active Detergent Intake Mode
3	Program Phase Bar
4	Program Subphase List
5	Selected Subphase
6	Clear Phase Software Button
7	Intake Mode Software Button
8	Simple/Expert Mode Switch Software Button
9	Save Changes and Exit Software Button
10	Exit Software Button

Table 1.23 Program Editing Window Components

The **"Intake Mode"** button changes the water intake mode between the "Level based" and the "Ratio based" methods. The "Intake Mode" button has to be pressed to change the water intake mode of a subphase before starting to edit the subphases.

The operator has to enter the ratio of the water weight corresponding to the laundry weight when the water intake mode is changed to "Ratio based" mode. The ratio can be entered as a value between "1" and "6" in steps with a precision of "1/10".

The set ratio will be used as the multiplier for the laundry weight which has been weighed by the scale system (*or entered manually*) to calculate the weight of the water to be taken in. The weight of the water is assumed to be the equivalent amount of the water volume because 1 liter water does weigh nearly 1 kg.

The procedure to set/edit a water subphase in the "Ratio based Water Intake" mode

- Press the **M2** memory keypad (*which corresponds to the "Intake Mode" software button*) before starting to edit the subphases. The "Water Intake" mode will switch to "Ratio" from "Level" and display the ratio as "1/0".
- Select the "Water" subphase by pressing the up-down direction keypads.
- Press the "Confirmation/OK" keypad to start editing the "Ratio" value.
- Modify the water intake ratio value by pressing the up-down direction keypads. Pressing the up-down direction keypads will change the numerical value by "1/10" per each key press. The ratio will start at the value of "1.0" and if you don't change the ratio then the value of "1" (*1/1*) will be set as the ratio value.

Fig. 1.57 Ratio Entry Box in the Water Intake Subphase

- Press the "Confirmation/OK" keypad to proceed to the "Water Valve" option box.
- Select the target "Water Valve" value by pressing the up-down direction keypads.
- Press the "Confirmation/OK" keypad to proceed to the next subphase.

NOTE

If you save your program without editing the ratio value then the water intake mode will switch back to "Level based Water Intake" and the current water level value of the program will be kept as it is.

Detergent Subphase in "Simple Mode"

Fig. 1.58 Detergent Box/Chemical Pump Selection in the Simple Mode Detergent Subphase

The number of the detergent boxes/chemical pumps on the "Program Editing" window is set by the "7th and 8th Detergent Support" and by the "9th Detergent Support" single choice options in the Factory window and by the "Flushing Support" parameter (*Parameter number 144*).

By default the basic MWS25, MWS35, MWS45, MWS55, and MWS65 models do have 5 detergent boxes and the basic MWS85 do have 6 detergent boxes. These models are being shipped with one additional detergent box signal activated which is not connected to an actual valve.

The basic MWS25, MWS35, MWS45, MWS55, and MWS65 models will have up to 5 available detergent boxes and the MWS85 models will have up to 6 available detergent boxes in the "Program Editing" window.

The 6. internal output has to be set as a separate box (*pump*) (*Status "0"*) in the 144. system parameter (*Operation status of Detergent Box F*) and the quantity of the detergent boxes has to be set to "6" in the 19. system parameter (*Detergent box quantity of the external detergent unit*) if the external detergent unit has six pumps.

The 7. internal output has to be set as a separate box (*pump*) (*Status "0"*) in the 144. system parameter (*Operation status of Detergent Box G*) and the quantity of the detergent boxes has to be set to "7" in the 19. system parameter (*Detergent box quantity of the external detergent unit*) if the external detergent unit has seven pumps.

The detergent boxes/chemical pumps are being activated for the set amount of duration defined in the "Water Flow Duration for the Detergent Boxes" parameters (*Parameter number 20, 21, 22, 23, 24, 25, 111, 112, 167*) when a "detergent" subphase is being edited in the "Simple Mode".

The procedure to set/edit the detergent subphase in the "Simple Mode"

- Select the "Detergent" subphase on the subphase list by pressing the up-down direction keypads.
- Press the "Confirmation/OK" keypad. The detergent subphase simple mode editing bar will be displayed.

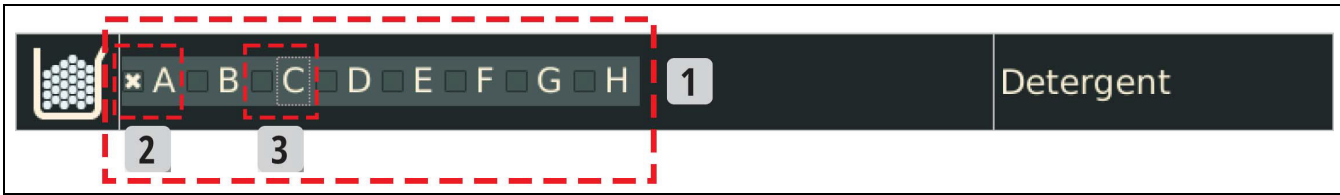


Fig. 1.59 Detergent Subphase Editing Bar in Simple Mode

No	Description
1	Active Detergent Boxes Indicator
2	Checked Detergent Box Checkbox
3	Selected and Highlighted Detergent Box Initial Letter

Table 1.24 Detergent Subphase Editing Bar in Simple Mode Components

- Select the target detergent box/chemical pump by pressing the left-right direction keypads. A selected detergent box will be highlighted with a dotted box around its letter.
- Press the "Confirmation/OK" keypad to check the selected detergent box/chemical pump. A checked detergent box will be highlighted with a cross inside its checkbox.

- Repeat the 2 former steps to check other detergent boxes/chemical pumps.
- Press the down direction keypad to proceed to the next subphase.

Detergent Subphase in "Expert Mode" with "Time based Measurement"

In the "Expert Mode", the activation duration of the detergent valves is either set manually in the "Detergent" subphase during program editing or is calculated and executed based on the laundry weight based detergent valve settings in the "Detergent" subphase and pump factors defined in the "Detergent Definitions" window.

The water flow duration (*Detergent Valve Activation Duration*) value set in the "Expert Mode" will precede the default values set in the "Water Flow Duration for the Detergent Boxes" parameters (*Parameter number 20, 21, 22, 23, 24, 25, 111, 112, 167*) specifically for the program being edited. The values of the "Water Flow Duration for the Detergent Boxes" parameters won't be affected for other programs unless the detergent subphases in those programs are also edited in the "Expert Mode".

The procedure to set/edit the detergent subphase in the "Expert Mode" with "Time based Measurement"

- Press the **M3** memory keypad (*which corresponds to the "Expert Mode" software button*) before starting to edit the subphases. The detergent box initials will switch to the "Box Initial + Time based Flow Duration" form and display the factory default time based flow duration for the particular detergent valve. The "Simple Mode" icon on the title bar of the "Program Editing Window" will switch to the "Expert Mode" icon. The "Expert Mode" software button corresponding to the **M3** memory keypad will switch to the "Simple Mode" software button.

Fig. 1.60 Program Editing Window in Expert Mode with Time based Measurement

No	Description
1	Export Mode Icon on the Notification Bar
2	Detergent Subphase Row with Water Flow Duration Values in Expert Mode
3	Simple Mode Transition Software Button in Expert Mode

Table 1.25 Program Editing Window Components

- Select the "Detergent" subphase on the subphase list by pressing the up-down direction keypads.
- Press the "Confirmation/OK" keypad. The detergent subphase expert mode editing bar will be displayed.

Fig. 1.61 Detergent Subphase Editing Bar in Expert Mode with Time based Measurement

No	Description
1	Active Detergent Boxes Indicator
2	Selected Detergent Box Label
3	Detergent Box Checkbox
4	Detergent Valve Water Flow Duration Value Entry Box

Table 1.26 Detergent Subphase Editing Bar in Expert Mode with Time based Measurement Components

- Select the target detergent box/chemical pump by pressing the left-right direction keypads. A selected detergent box will be highlighted with a flashing box on the "Active Detergent Boxes Indicator". Also its letter will be displayed as a label under the indicator.

- If the selected detergent box doesn't already have a time based flow value in it then pressing the "Confirmation/OK" keypad will directly check the "Detergent Box Checkbox" and activate the "Value Entry Box".
- Enter the value by pressing the direction keypads. The up-down direction keypads let you change the value by "1" per keypad press whereas the left-right direction keypads let you change the value by "10" per keypad press. The maximum value for all of the detergent boxes is "120" seconds.
- Press the "Confirmation/OK" keypad to set the value to the detergent box/chemical pump. Repeat the 2 former steps to edit other detergent boxes/chemical pumps without former values in them.
- If the selected detergent box does already have a time based flow value in it then pressing the "Confirmation/OK" keypad will,
  - first uncheck the "Detergent Box Checkbox". At this stage you can continue to press the left-right direction keypads to select another detergent box. The unchecked detergent box will be deleted from the subphase if you finish editing the detergent subphase.
  - The "Detergent Box Checkbox" will be checked and the "Value Entry Box" will be activated if you press the "Confirmation/OK" keypad again.
  - Enter the value by pressing the direction keypads. The up-down direction keypads let you change the value by "1" per keypad press whereas the left-right direction keypads let you change the value by "10" per keypad press. The maximum value for all of the detergent boxes is "120" seconds.
- Press the down direction keypad to proceed to the next subphase.

Detergent Subphase in "Expert Mode" with "Weight based Measurement"

The controller can take in the detergents/chemicals based on the weight of the laundry load in the drum by setting the 129. parameter (*Detergent Measurement Method*) to the "Weight based Measurement Method" (*"ml/kg" in metric units, "fl oz/lb" in american units*) when the "Laundry Scale" option is installed. This setting will convert the detergent intake method of all the programs to the "Weight based Measurement Method".

NOTE

If the 129. parameter is being changed from the factory setting of "sec" (time based) to "ml/kg" (weight based) then all of the existing programs will have to be edited manually in the "Expert Mode" for them to take in the proper amount of detergents/chemicals. A warning dialog box with the message "*You have to modify the detergent subphases of all the existing programs in the "Expert Mode" because the 129. parameter changes the intake method of the detergent subphase.*" will be displayed.

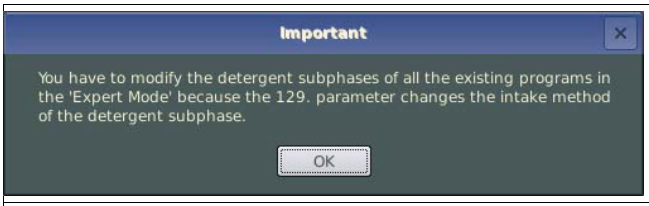


Fig. 1.62 Warning Dialog Box about the Modification of the Weight based Measurement Method Parameter

The user must enter an amount of detergent instead of the detergent valve activation duration in the "Expert Mode" when the 129. parameter (*Detergent Measurement Method*) is set to the "Weight based Measurement Method" (*"ml/kg" in metric units, "fl oz/lb" in american units*). If a program is not edited in the "Expert Mode" when the "Laundry Scale" option is installed and the detergent measurement method has been switched to the "Weight based Measurement Method" then the controller will directly use the existing duration value in the detergent subphase as the "detergent amount per laundry weight" value and use the weighed value of the laundry to calculate the detergent valve activation duration based on the detergent flow duration formula.

If the 130. system parameter is set to "1" the operator is requested to enter the weight of the laundry. This feature provides the ability to customize the detergent flow duration of the external container if the machine's drum isn't fully loaded by modifying the laundry weight per each separate cycle.

If the 129. system parameter is set to "duration" then the 130. system parameter will be bypassed.

The limits for customized laundry weight entry are between 1 kg as the minimum and 20% higher than the machine's own stated capacity as the maximum. The weight cannot be weighed or entered as "0". If you try to start a program with "0" kg (lb) weight value then the system will display a sliding error message bar with the message "You have to load at least 1 kg".

Fig. 1.63 "Insufficient Weight" Sliding Error Message Bar

Fig. 1.64 Laundry Weighing Window

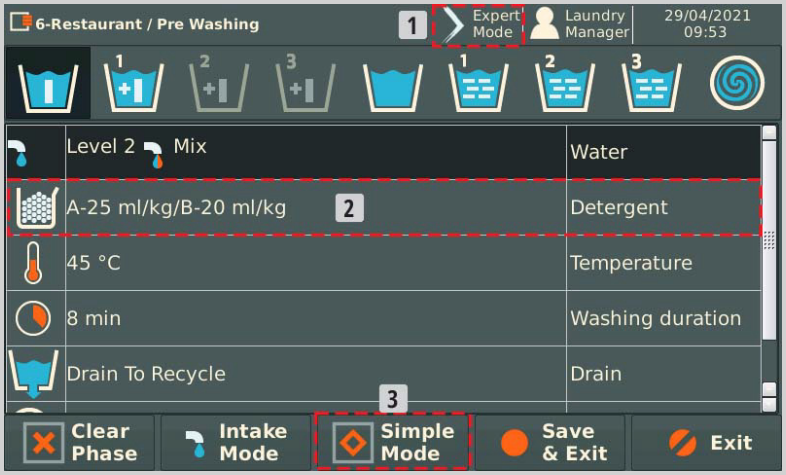
The formula for the duration of the pump activation signal calculation, based on the weight based detergent measurement method is:

Metric Units	$\text{Detergent Pump Activation Duration (sec)} = \frac{\text{Laundry Weight (kg) x Detergent Flow Ratio (ml/kg)}}{\text{Pump Factor (ml/sec)}}$
American Units	$\text{Detergent Pump Activation Duration (sec)} = \frac{\text{Laundry Weight (lb) x Detergent Flow Ratio (fl oz/lb)}}{\text{Pump Factor (fl oz/sec)}}$

Formula 1.1 Formula to calculate the Detergent/Chemical Valve Activation Duration in Metric and American units

The procedure to set/edit the detergent subphase in the "Expert Mode" with "Weight based Measurement"

- Press the **M3** memory keypad (*which corresponds to the "Expert Mode" software button*) before starting to edit the subphases. The detergent box initials will switch to the "Box Initial + Detergent Weight per Laundry Weight" form and display the factory default weight based flow duration for the particular detergent valve. The "Simple Mode" icon on the title bar of the "Program Editing Window" will switch to the "Expert Mode" icon. The "Expert Mode" software button corresponding to the **M3** memory keypad will switch to the "Simple Mode" software button.



No	Description
1	Export Mode Icon on the Notification Bar
2	Detergent Subphase Row with Weight based Values in Expert Mode
3	Simple Mode Transition Software Button in Expert Mode

Fig. 1.65 Program Editing Window in Expert Mode with Weight based Measurement

Table 1.27 Program Editing Window Components

- Select the "Detergent" subphase on the subphase list by pressing the up-down direction keypads.
- Press the "Confirmation/OK" keypad. The detergent subphase expert mode editing bar will be displayed.

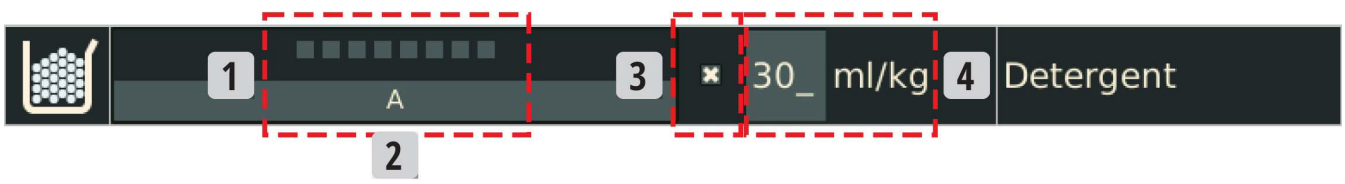


Fig. 1.66 Detergent Subphase Editing Bar in Expert Mode with Weight based Measurement

No	Description
1	Active Detergent Boxes Indicator
2	Selected Detergent Box Label
3	Detergent Box Checkbox
4	Detergent Valve Weight based Water Flow Duration Value Entry Box

Table 1.28 Detergent Subphase Editing Bar in Expert Mode with Weight based Measurement Components

- Select the target detergent box/chemical pump by pressing the left-right direction keypads. A selected detergent box will be highlighted with a flashing box on the "Active Detergent Boxes Indicator". Also its letter will be displayed as a label under the indicator.
- If the selected detergent box doesn't already have a weight based flow value in it then pressing the "Confirmation/OK" keypad will directly check the "Detergent Box Checkbox" and activate the "Value Entry Box".
- Enter the value by pressing the direction keypads. The up-down direction keypads let you change the value by "1" per keypad press whereas the left-right direction keypads let you change the value by "10" per keypad press. The maximum value for all of the detergent boxes is "120" ml/kg.
- Press the "Confirmation/OK" keypad to set the value to the detergent box/chemical pump. Repeat the 2 former steps to edit other detergent boxes/chemical pumps without former values in them.
- If the selected detergent box does already have a weight based flow value in it then pressing the "Confirmation/OK" keypad will,
  - first uncheck the "Detergent Box Checkbox". At this stage you can continue to press the left-right direction keypads to select another detergent box. The unchecked detergent box will be deleted from the subphase if you finish editing the detergent subphase.

- The “Detergent Box Checkbox” will be checked and the “Value Entry Box” will be activated if you press the “Confirmation/OK” keypad again.
- Enter the value by pressing the direction keypads. The up-down direction keypads let you change the value by “1” per keypad press whereas the left-right direction keypads let you change the value by “10” per keypad press. The maximum value for all of the detergent boxes is “120” ml/kg.

- Press the down direction keypad to proceed to the next subphase.

Temperature Subphase

NOTE

The fabric care instructions supplied by the textile manufacturer should always be followed. Use appropriate washing temperature values for the loaded laundry type.

The maximum factory setting value for the temperature is 90 °C (*194 °F*) for all of the models. This limit is set in the 9. system parameter with a maximum value of 90 °C (*194 °F*).

If you execute a program with a target temperature value lower than the incoming water temperature then the controller software will skip the heating process and continue to execute the next subphases.

If the temperature control has to be skipped in a certain phase then the temperature value should be set to “0” (*zero*). In this case the controller software won’t check the water temperature during that phase.

The procedure to set/edit the “Temperature” subphase

- Select the “Temperature” subphase on the subphase list by pressing the up-down direction keypads.
- Press the “Confirmation/OK” keypad. The temperature subphase value entry box will be displayed.
- Set the temperature value by pressing the direction keypads. The up-down direction keypads let you change the value by “1” per keypad press whereas the left-right direction keypads let you change the value by “10” per keypad press.
- Press the “Confirmation/OK” keypad to save the value and proceed to the next subphase.

Washing Duration Subphase

Washing duration can’t be set as more than 30 minutes by default. The “Maximum Washing Duration per Program Phase” parameter (*Parameter 74*) sets the maximum washing duration which can be used in a program expressed in minutes. The maximum value for the 74. parameter is “60” minutes.

The procedure to set/edit the washing subphase

- Select the “Washing (*Duration*)” subphase on the subphase list by pressing the up-down direction keypads.
- Press the “Confirmation/OK” keypad. The washing duration subphase value entry box will be displayed.
- Set the washing duration value by pressing the direction keypads. The up-down direction keypads let you change the value by “1” per keypad press whereas the left-right direction keypads let you change the value by “10” per keypad press.
- Press the “Confirmation/OK” keypad to save the value and proceed to the next subphase.

Drain Subphase

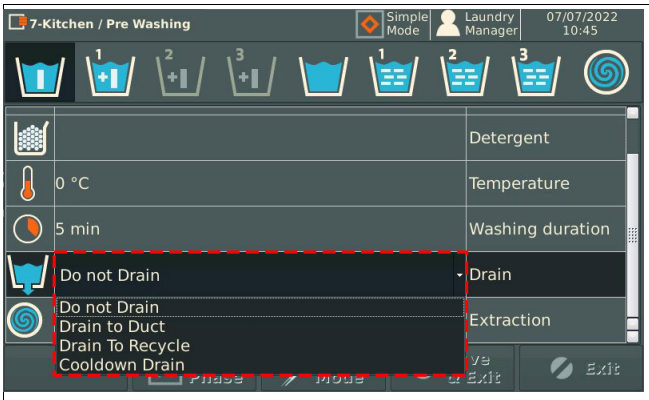


Fig. 1.67 Drain Valve Option box in the Drain Subphase

Water drainage is automatically executed when the extraction action starts. Extraction without draining the water in the drum is not possible because of this design and the “Don't Drain” option for the “Drain” subphase cannot be selected in the same phase when also an “Extraction” subphase is selected.

A phase without the extraction subphase where drainage is selected (*Only “Drain to Duct” or “Drain to Recycle”*) can be created. In default all of the factory programs are created without any extraction subphases (*except the 16. program which is used just to extract water from the laundry*).

By default the drainage action of an extraction subphase will be activated in the 3. ramp. This setting can be modified in the 85. parameter which controls the drain valve opening ramp number for all of the extraction subphases (*including the extraction phase*). Its default value is “3” and can only be changed down to “1”.

Explanations of Drain Methods

- **Drain to Duct:** This option does drain the washing water to the outtake pipe designated as “Duct”. Normal drain digital output has to be assigned to the relevant drain output in the factory settings. Refer to the DO2 in *"Digital Outputs of the Models with Drawer Type Detergent Boxes"* on page 103.
- **Drain to Recycle:** This option does drain the water to the outtake pipe designated as “Recycle”. A digital output (*DO*) has to be connected to the physical “Recycle Outtake Drain Valve” which has to be set accordingly in the “Drain to Recycle” I/O link definition. Refer to the DO1 in *"Digital Outputs of the Models with Drawer Type Detergent Boxes"* on page 103.

  The “Extraction” phase will also automatically use the “Drain to Recycle” method if this option is selected as the drainage method in the last phase before the “Extraction” phase.
- **Cooldown Drain:** This option is used to prevent the thermal shock in laundry caused by the temperature changes of the water. This drainage option is specifically used for textiles which can get damaged by thermal shock caused by the temperature difference of the water in the next washing phase. The cooldown process will gradually cool the temperature of the water and with it the temperature of the textile. The parameters between 124 and 127 are used to fine tune this drainage method.
- **Don’t Drain:** This option doesn’t drain the washing water and reuses it in the next phase. This method is generally used to utilize the washing water of the last pre-wash phase in the main washing phase.

  Another use for this drainage method is when it’s required to mix detergents from the former phase with additional detergents in the next phase.

The procedure to set/edit the drain subphase

- Select the “Drain” subphase on the subphase list by pressing the up-down direction keypads.
- Press the “Confirmation/OK” keypad to start editing the “Drain” picklist.
- Select the target “Drain” option by pressing the up-down direction keypads.
- Press the “Confirmation/OK” keypad to save the value and proceed to the next subphase.

  It will proceed to the next phase if “Don’t Drain” is selected.

Parameters related to the Drain Subphase

- The 72. system parameter sets the duration of the drain expressed in seconds.
- The 140. system parameter sets the operation reference of the drain phase

  The drainage process starts up time based and the duration of the drainage is set in the 72. parameter if its value is set as "0".

  This parameter acts as the water level to finish the drainage expressed in cm (*in*) if its value is set higher than "0".

  The controller checks the water level just for the "Washing" and "Rinsing" main phases when this parameter is set bigger than "0".
- The 141. system parameter sets the "Open Status" (*ON*) duration of the drain valve at the "Washing" main phase when the drum water reaches the bottom level expressed in the 140. parameter.
- The 142. system parameter sets the "Open Status" (*ON*) duration of the drain valve at the "Rinsing" main phase when the drum water reaches the bottom level expressed in the 140. parameter.

Extraction Subphase

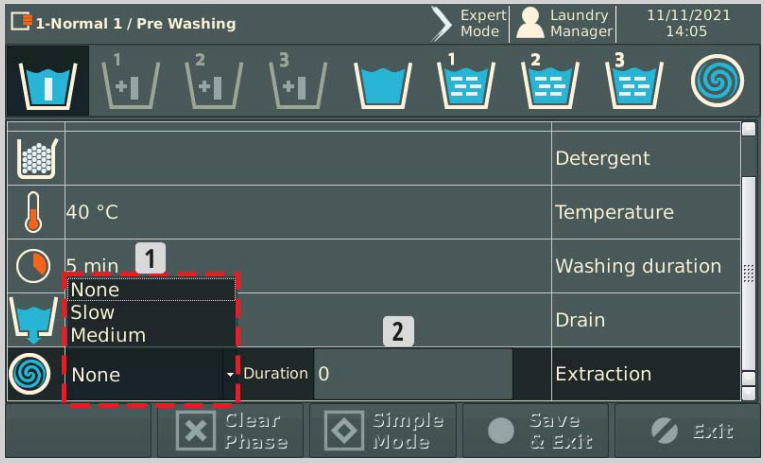


Fig. 1.68 Extraction Speed and Duration Options in Extraction Subphase

No	Description
1	Extraction Speed Picklist
2	Extraction Duration Entry Box

Table 1.29 Program Editing Window Components

The extraction ramps corresponding to the extraction speed levels are set in the system parameters between 69 to 71 (*69 for "Slow" speed, 70 for "Medium" speed, 71 for "Fast" speed*).

Select "None" if the "Extraction subphase" won't be used, otherwise select "Slow" or "Middle".

The minimum selectable value is "1" minutes and the maximum selectable value is "3" minutes for the Extraction subphase.

The procedure to set/edit the extraction subphase

- Select the "Extraction" subphase on the subphase list by pressing the up-down direction keypads.
- Press the "Confirmation/OK" keypad to start editing the "Extraction Speed" picklist.
- Select the "Extraction Speed" value on the Extraction Speed picklist by pressing the up-down direction keypads.
- Press the "Confirmation/OK" keypad or the right direction keypad to skip to the "Extraction Duration" entry box.
- Modify the extraction duration value pressing the up-down direction keypads.
- Press the "Confirmation/OK" keypad to finish setting/editing the "Extraction subphase".

Extraction Phase

The 67. system parameter sets the maximum extraction duration to be used in the extraction phase for any of the extraction speeds expressed in minutes.

The procedure to set/edit the extraction phase

- Select the "Extraction" phase on the phase bar by pressing the left-right direction keypads.
- Press the "Confirmation/OK" keypad to start editing the "Extraction Speed" picklist.

1.13.6. DRUM PARAMETERS CUSTOMIZATION

Drum parameters (*"Drum Rotation Duration", "Drum Stop Duration" and "Drum Rotation Period"*) are normally set globally via system parameters for all programs. Programs can be set with customized drum parameters by enabling the "Customized Drum Values Support" option on the "Machine Setup Options" sub-window of the "Factory" window or by modifying the 131. parameter accordingly.

The value of the 131. system parameter (*Customize drum values per program*) has to be set to "1".

The procedure to set/edit the customizable drum parameters

- Select the target program to customize its drum values on the "Program Selection" window by pressing the direction keypads.
- Press the "Menu" keypad and open the "Main" menu.
- Select the "Edit Program" software button by pressing the direction keypads.
- Press the "Confirmation/OK" keypad.
- The "Program Name Entry/Edit" dialog box will be displayed.

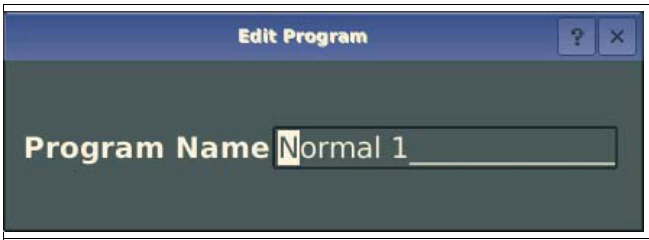


Fig. 1.69 Program Name Entry/Edit Dialog Box

- Enter a name (*or edit the existing name*) for the program in the "Program Name Entry/Edit" dialog box and press the "Confirmation/OK" keypad. Press the up-down direction keypads to change the character on a specific digit and press the left-right direction keypads to change the digit place. The program name can be at most 30 characters long. You can also skip this step by pressing the "Confirmation/OK" keypad if you are not going to change the program name.
- The "Customized Drum Values" window will be displayed.

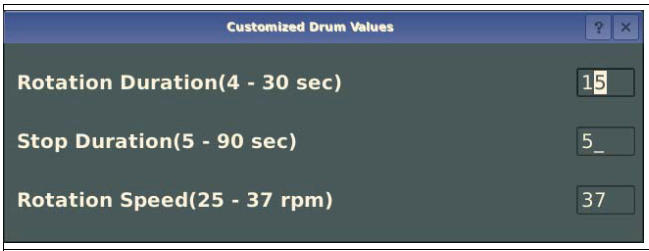


Fig. 1.70 "Customized Drum Values" Window

- Customize the drum rotation parameters by using the direction keypads. The up-down direction keypads let you change the value by "1" per keypad press whereas the left-right direction keypads let you change the value by "10" per keypad press.
- Press the "Confirmation/OK" keypad to set a value and to skip to the next value cell. If you don't want to change the current value then just press the "Confirmation/OK" keypad without modifying the value to skip to the next value cell.
- The "Customized Drum Values" window will be closed after setting the "Rotation Speed" value and the "Program Editing" window will be displayed.
- Finish editing the program and save it.

1.13.7. EDITING PROGRAMS ON A COMPUTER

Exported programs can be edited manually by using a spreadsheet software and be modified on a computer. Modified files can then be imported back into a controller via a USB flash disk.

An exported program file will include the program subphases and their setpoints laid out as a table.

Any spreadsheet software which can edit a basic csv file (*Such as MS Excel, LibreOffice Calc, Google Sheets etc*) can be used to edit the exported programs. Refer to the *"Manual Program Editing File"* section on page 57.

The gray colored cells in the sample file should be edited.

The setpoint value limits for the value cells in the CSV files

Water Intake Level

Water intake level can be set maximum as “5” for washing phases and “6” for rinsing phases. When adjusting washing or rinsing levels keep in mind that the system parameters are by default set to these values but they may have been changed to some other values in system parameters 10 and 11. In such a case, make sure first to modify these system parameters before importing modified programs. Refer to the *"NOTE"* on page 43 in the “Water Intake Subphase Steps” for “Water Level” values.

NOTE

If a value outside the limit is entered, the system will warn during import and will not import the problematic program.

Temperature Value

Temperature values can be set maximum to 90 °C.

Washing Duration Value

Washing duration can be set maximum to 30 minutes by default. The “Maximum Washing Duration per Program Phase” parameter (*Parameter 74*) sets the maximum washing duration which can be used in a program expressed in minutes. The maximum value for the 74. parameter is “60” minutes.

Extraction Duration Value

Extraction duration can be set maximum to the value defined in the 67. system parameter. Factory setting for this value is “5” and the maximum value is “9”.

Manual Program Editing File

No	Name	Setpoints	Pre-Wash	Extra Pre-Wash 1	Extra Pre-Wash 2	Extra Pre-Wash 3	Main Wash	Rinsing 1	Rinsing 2	Rinsing 3	Extraction
1	Normal 1	Water Level	2				2	3	3	3	0
		Water Type	3				3	1	1	1	0
Rotation Duration (sec)	15	Water Intake Mode	1				1	1	1	1	0
Stop Duration (sec)	5	Detergent Box	A				B			C	
Rotation Speed (rpm)	37	Detergent Duration (sec)	0				0				
Program Price	0	Temperature (°C)	40				60	0	0	0	0
Next Program No	-1	Washing Duration (min)	5				10	3	3	3	0
Please don't edit the version number		Drain Type	1				1	1	1	1	0
Version Number	1.0.4.5	Extraction Level	0				0	0	0	0	3
Detergent Mode (1=Simplex, 2=Expert)	1	Extraction Duration (min)	0				0	0	0	0	5
#	#	#	#	#	#	#	#	#	#	#	#
		Water Level									
		For ratio based water intake mode, please enter 10 times for ratio value									
		For level based water intake mode, please enter level value between 1-6									
#	#	#	#	#	#	#	#	#	#	#	#
		Water Type									
		No Water	0								
		Cold	1								
		Hot	2								
		Mix	3								
		Soft	4								
#	#	#	#	#	#	#	#	#	#	#	#
		Water Intake Mode									
		Level Based Water Intake	0								
		Ratio Based Water Intake	1								
#	#	#	#	#	#	#	#	#	#	#	#
		Drain									
		No	0								
		Yes	1								
		Recycle	2								
		CoolDown	3								
#	#	#	#	#	#	#	#	#	#	#	#
		Extraction Level									
		None	0								
		Slow	1								
		Medium	2								
		Fast	3								

Table 1.30 Manual Program Editing File

1.13.8. SEQUENTIAL PROGRAM EXECUTION - CHAINING PROGRAMS

The sequential program execution feature is used to create and execute a program which contains more than the factory default of 9 phases.

This feature can also decrease the total number of programs if there are program chains which have more than 9 phases and identical phases at the beginning or the end of the chain. Such program chains can utilize the same program which contains the identical phases.

The 163. parameter should be set as "1" to enable the sequential program execution feature. This feature can also be utilized by the "Laundry Manager" user.

The procedure to attach two programs into a chain

- Press the "Save&Exit" software button on the program editing window.
- A confirmation dialog box with the message "Do you want to attach a sequential program?" will be displayed.

Fig. 1.71 Confirmation Dialog Box to Attach a Sequential Program

- Select the "Yes" software button by pressing the direction keypads. (*The program will be saved without attaching another program to it if "No" is selected.*)
- Press the "Confirmation/OK" keypad to apply the selection.
- A dialog box with the text "Enter Next Program No" will be displayed.
- Select the program number which will be chained to the current program by pressing the direction keypads in the "Program No" cell. The up-down direction keypads let you change the value by "1" per keypad press whereas the left-right direction keypads let you change the value by "10" per keypad press.

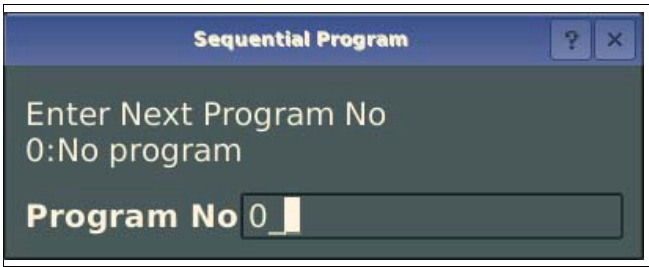


Fig. 1.72 Sequential Program Number Entry Dialog Box

- Press the "Confirmation/OK" keypad to save your changes.

The procedure to detach two chained programs

- Press the "Save&Exit" software button on the program editing window.
- A confirmation dialog box with the message "Do you want to attach a sequential program?" will be displayed.

Fig. 1.73 Confirmation Dialog Box to Attach a Sequential Program

- Select the "Yes" software button by pressing the direction keypads and press the "Confirmation/OK" keypad to apply the selection. (*The program will be saved without detaching the chained program if "No" is selected.*)
- A dialog box with the text "Enter Next Program No" will be displayed. The "Program No" line will have the value of "0" (*Zero*) pre-selected in it. Do not change the value of "0".

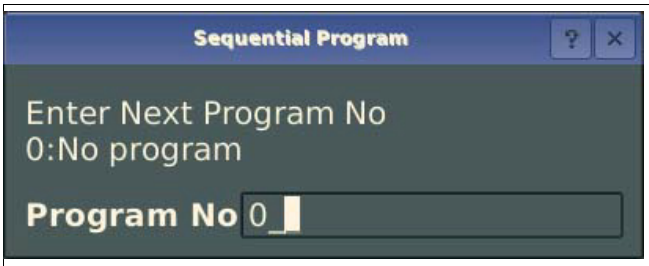


Fig. 1.74 Sequential Program Number Entry Dialog Box

- Press the "Confirmation/OK" keypad to save your changes. The program chain will be detached.

Fig. 1.75 Program Selection Window with a Chained Program Number

No	Description
1	Chained Program Number / Sequential Program Number

Table 1.31 Program Selection Window Components

More than 2 programs can be attached to one another. You have to repeat the above procedure on the last program of a program chain to further attach other programs to your existing program chain.

The second program number of a program chain will be displayed as a second number separated with a comma in the "Program No" column of the initial program. The further programs of a program chain won't be displayed in the "Program No" column. The target programs won't display their initial programs on their program number columns. If you chain the programs 1, 2 and 3 then you will see "1,2" on the program number column of the 1st program and "2,3" on program number column of the 2nd program and only "3" on the program number column of the 3rd program.

IMPORTANT

You will create a closed loop if you attach the last program to the initial program in a program chain. Such a closed loop program chain would be executed without stopping.

NOTE

The software won't allow you to connect to an empty program and a warning dialog box with the message "Selected program is empty" will be displayed in case you try to connect to an empty program.

The procedure to execute attached programs

- Select the initial program of a program chain.
- Start the program.

1.13.9. Factory Programs Table

Program Name	Code Number	Pre-Wash					Extra Pre-Wash					Main Wash					Rinse			Extraction
		°C	°F				°C	°F				°C	°F						1x	
Normal 1	**P01**	40	104	2	A	5'						60	140	2	B	10'	COLD	3	C	3'	3	FAST
Normal 2	**P02**	COLD		2	A	5'						COLD		2	B	10'	COLD	3	C	3'	2	FAST
Economic 1	**P03**											60	140	2	B	10'	COLD	3	C	3'	2	FAST
Economic 2	**P04**											COLD		2	B	10'	COLD	3	C	3'	2	FAST
Bedding and Bath	**P05**											80	176	2	B	10'	COLD	3	C	3'	3	FAST
Restaurant	**P06**	40	104	2	A	5'	40	104	2		5'	80	176	2	B	10'	COLD	3	C	3'	3	FAST
Kitchen Linen	**P07**	COLD		2		5'	40	104	1	A	5'	70	158	2	B	10'	COLD	3	C	3'	3	FAST
Hospital	**P08**	3x		2		3'	40	104	1	A	5'	80	176	2	B	10'	COLD	3	C	3'	2	FAST
Workware	**P09**						40	104	1	A	10'	60	140	2	B	10'	COLD	3	C	3'	3	FAST
Woolen	**P10**	30	86	2	A	5'						40	104	2	B	10'	COLD	3	C	3'	3	FAST
Rinsing	**P11**																COLD	3	C	3'	1	FAST
Boil Wash Disinfection	**P12**	80	176	2		5'											COLD	3	C	3'	1	FAST
Drain	**P13**	**ONLY DRAINAGE**																				
Colored	**P14**	COLD		2	A	5'						40	104	2	B	10'	COLD	3	C	3'	3	FAST
White	**P15**	40	104	2	A	5'						70	158	2	B	10'	COLD	3	C	3'	3	FAST
Extraction	**P16**	**HIGH SPIN EXTRACTION FOR FIVE MINUTES**																				

Table 1.32 Factory Programs Table

1.13.10. DELAYED PROGRAM EXECUTION

The “Delayed Program Execution” feature is used to start a program at a future date and time without user intervention. The executed state of a delayed program is called the “Delayed Program Mode”.

IMPORTANT

Hang a warning sign onto the machine when it’s switched to the “Delayed Program Mode” to inform people about its state.

The “Program Delay Duration” can be entered as at least 1 minute and at most 99 hours 59 minutes. Press the “Jump” keypad to open the “Program Delay Duration Entry” window after selecting a target program on the “Program Selection” window.

If an issue which prevents starting of a program does occur during countdown:

- a permanent type “sliding message bar” will be displayed which informs about the issue (a list of all such messages)
- when the issue is fixed the “sliding message bar” will be removed from the screen

The only permanent “sliding message bar” that “Please close the loading door” has an accompanying pop-up error message box. If the loading door is still not closed at the end of the countdown this pop-up message box is being displayed and the countdown window is being closed when this pop-up message box is acknowledged by pressing the “Confirmation/OK” keypad. The delayed program is being cancelled in this case.

The procedure to create and start a “Delayed Program”

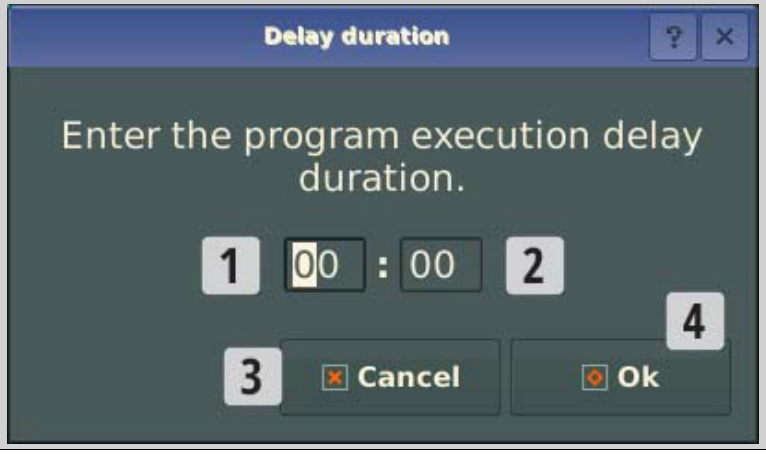


Fig. 1.76 Program Delay Duration Entry Window

No	Description
1	Hour Digit Entry Cell
2	Minute Digit Entry Cell
3	Cancel Software Button
4	Confirmation/OK Software Button

Table 1.33 Program Delay Duration Entry Window Components

When the “Delayed Program Mode” ends, an “OK” message box will appear on the control panel display, just as at the end of the normal program.

To start the program before the countdown period ends, press the **M3** keypad to start the program immediately.

To cancel the program countdown, press the **M1** keypad to cancel the program countdown.

- Select the target program on the “Program Selection” window by pressing the direction keypads.
- Press the “Jump” keypad. The “ProgramDelay Duration Entry” window will be displayed. The “Hour Digit” in the window will be selected and active for value entry.
- Enter the hour value by pressing the direction keypads in the hour cell. Up-down changes 10, right-left changes 1.
- Press the “Confirmation/OK” keypad. Cursor will move to Minute cell.
- Enter the minute value by pressing the direction keypads in the minute cell. Up-down keypad change the value 10 digits, right-left changes 1.
- Press the “Confirmation/OK” keypad. The “OK” software button becomes active.
- Press the “Confirmation/OK” keypad to start the clock.

- Press the “Cancel/Esc” keypad to abandon the entry.
- Press the “Jump” keypad to correct the clock entry.

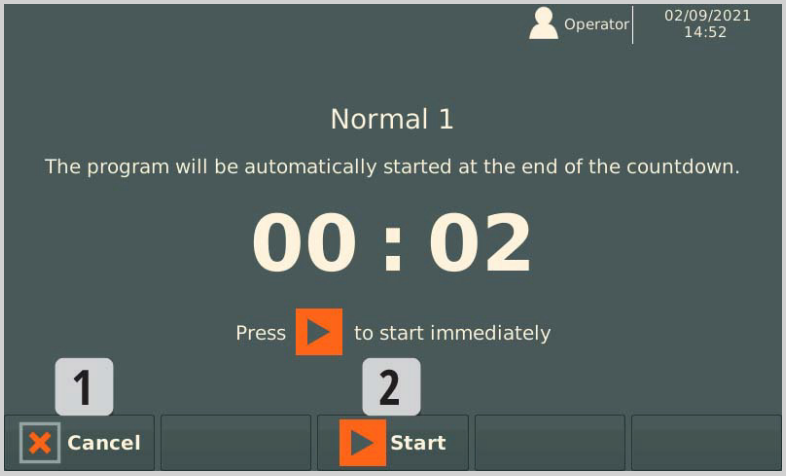


Fig. 1.77 Delayed Program Countdown Window

No	Description
1	Delayed Program Cancellation Software Button
2	Delayed Program Manual Start Software Button

Table 1.34 Delayed Program Countdown Window Components

1.14. SYSTEM SETTINGS

System settings menu contains user rights, system date, network settings, database backup, and software backup-upgrade such operates database functions.

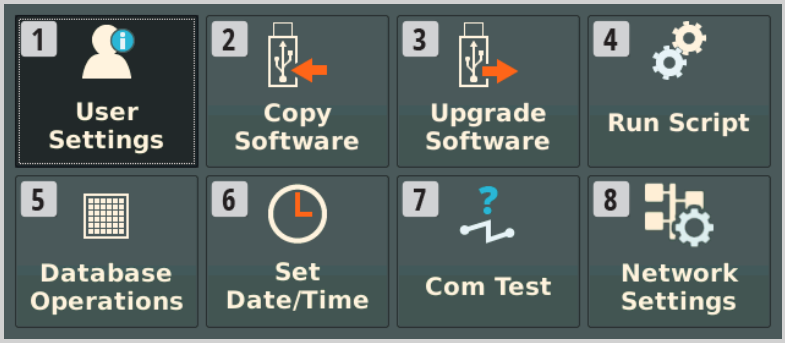


Fig. 1.78 System Settings Menu

No	Description
1	User Settings Software Button
2	Copy Software Software Button
3	Upgrade Software Software Button
4	Run Script Software Button
5	Database Operations Software Button
6	Set Date/Time Software Button
7	Com Test Software Button
8	Network Settings Software Button

Table 1.35 System Settings Menu Components

1.14.1. USER SETTINGS

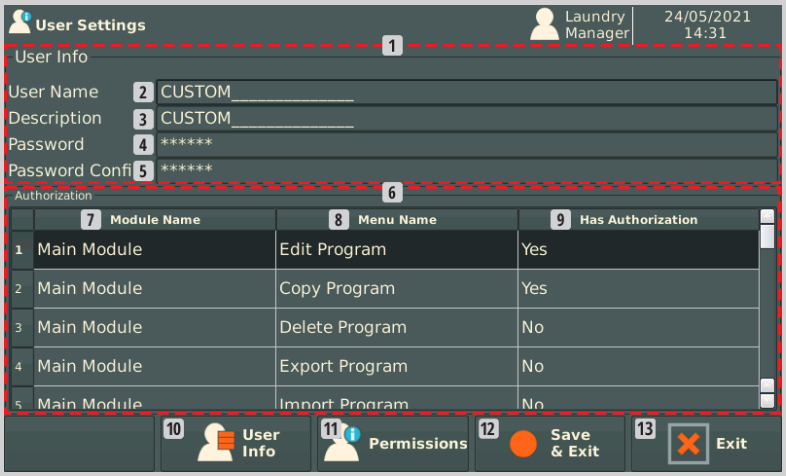
Fig. 1.79 User Settings User List Window

No	Description
1	User Name List Column
2	User Description Column
3	New User Software Button
4	Edit User Software Button
5	Delete User Software Button
6	“Exit from Window” Software Button

Table 1.36 User Settings User List Window Components

The authorization levels of the users are defined in the “User Settings User List” window which are used to set their permissions. The authorization levels are defined by setting the access rights of the users to different windows and functions of the software. The system has 3 factory defined authorization levels: Operator, Laundry Manager and Service. The list and rights matrix of these factory defined authorization levels is listed in **1.14.2.** *"USER AUTHORIZATIONS TABLE"* section on page 66. Factory defined authorization levels can’t be deleted.

The procedure to edit existing users or to create new users



No	Description
1	User Info Frame
2	User Name Field
3	User Description Field
4	Password Field
5	Password Confirmation Field
6	Authorization Settings Frame
7	Module Name Column
8	Menu Name Column
9	Authorization Setting Column
10	User Name Frame Selection Software Button
11	Authorization Settings Frame Selection Software Button
12	Save and Exit Software Button
13	"Exit from Window" Software Button

Fig. 1.80 User Settings Edit User Window

Table 1.37 User Settings Edit User Window Components

The "Authorization Level Editing" window consists of two subsections: "User Info" and "Menu/Function Authorization List".

The "User Info" subsection contains the "User Name", "Description", "Password" and "Password Confirmation" fields.

The "Authorization" subsection contains a list which has the "Module Name", "Menu Name" and "Authorization" columns.

To create a new user authorization level or to edit/modify an existing user authorization level:

- Login as an authorized user.
- Press the "Menu" keypad to open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Service" menu.
- Select the "System Settings" software button on the "Service" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "System Settings" menu.
- Select the "User Settings" software button on the "System Settings" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "User Settings" window.
- Press the **M2** keypad (*which corresponds to the "New User" software button*) to create a new user. The window will switch to the "User Authorization Editing Window" when the "New User" software button is pressed to create a new user authorization level. The cursor will directly blink on the first digit of the "User Name" field. Select the existing user by pressing the up-down direction keypads and press the **M3** keypad (*which corresponds to the "Edit User" software button*) to edit an existing user.

On the "User Authorization Editing Window":

- Enter a name (*or edit the existing name*) for the user in the "User Name" field. Press the up-down direction keypads to change the character on a specific digit and press the left-right direction keypads to change the digit place. The "User Name" can be at most 20 characters long.
- Press the "Confirmation/OK" keypad to temporarily save the username and to proceed to the "Description" field.
- Enter (*or edit*) the description by pressing the up-down direction keypads to select the characters and by pressing the left-right direction keypads to switch between the digits. The "Description" field can be at most 20 characters long.
- Press the "Confirmation/OK" keypad to temporarily save the description and to proceed to the "Password" field.
- Enter (*or edit*) the password by pressing the up-down direction keypads to select the numbers and by pressing the left-right direction keypads to switch between the digits. The password must have 6 digits in total.
- Press the "Confirmation/OK" keypad to temporarily save the password and to proceed to the "Password Confirmation" field.

- Enter the password again by pressing the up-down direction keypads to select the numbers and by pressing the left-right direction keypads to switch between the digits.
- Press the “Confirmation/OK” keypad to temporarily confirm the password and to proceed to the “Authorization Settings” frame.

The authorization levels are set based on software button usage rights which delegate certain menu access rights and action rights to the software buttons. Menu button settings in the authorization list do set the right to access to that particular menu window. Action button settings in the authorization list do set the right to use that particular action.

The procedure to set the authorization of a particular menu or action

- Use the up-down direction keypads to select the target authorization setting item.
- Press the “Confirmation/OK” keypad to enter the authorization setting mode.
- In the authorization setting mode the authorization box of the selected line will become selectable with the options “Yes” and “No”. Select the required option and press the “Confirmation/OK” keypad again.
- Repeat these steps until all of the required settings are set accordingly.
- Press the **M4** keypad (*which corresponds to the “Save&Exit” software button*) to save your changes into the database.

The procedure to delete existing users

The “Delete User” software button only becomes active on custom created users. Factory defined users can’t be deleted.

On the “User Settings User List” window:

- Login as an authorized user.
- Press the “Menu” keypad to open the “Main” menu.
- Select the “Service” software button on the “Main” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Service” menu.
- Select the “System Settings” software button on the “Service” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “System Settings” menu.
- Select the “User Settings” software button on the “System Settings” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “User Settings” window.
- Select a custom created user by pressing the up-down direction keypads.
- Press the M4 keypad (*which corresponds to the “Delete User” software button*)

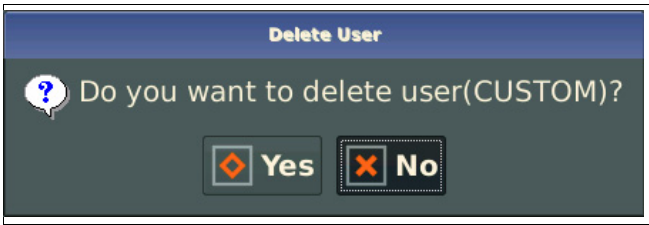


Fig. 1.81 Delete User Dialog Box

- The “Delete User” dialog box will be displayed.
- Select the “Yes” software button by pressing the direction keypads.
- Press the “Confirmation/OK” keypad.
- The user will be deleted.

1.14.2. USER AUTHORIZATIONS TABLE

No	Module Name	Menu Name	Operator	Laundry Manager	Service
1	Main Screen	Edit Program		•	•
2	Main Screen	Copy Program		•	•
3	Main Screen	Delete Program		•	•
4	Main Screen	Export Program		•	•
5	Main Screen	Import Program		•	•
6	Main Screen	Service		•	•
7	Program Editor	Clear Phase		•	•
8	Program Editor	Expert/Simple Mode		•	•
9	Program Execution	Edit Setpoint	•	•	•
10	Program Execution	Save		•	•
11	General Module	Alarm	•	•	•
12	General Module	Mimic View	•	•	•
13	Service	Parameters		•	•
14	Service	Diagnostics		•	•
15	Service	I/O Link			•
16	Service	Detergent Definitions		•	•
17	Service	Statistics		•	•
18	Service	Factory			•
19	Service	Troubleshooting			•
20	Service	System Settings		•	•
21	Statistics Module	Alarm Statistics		•	•
22	System Settings	Copy Software			•
23	System Settings	Upgrade Software			•
24	System Settings	Run Script		•	•
25	System Settings	Database Operations		•	•
26	System Settings	Set Date/Time		•	•
27	Database Operations	Create Backup		•	•
28	Database Operations	Restore Backup		•	•
29	Database Operations	Delete Backup		•	•
30	Database Operations	Export Backup		•	•
31	Database Operations	Import Backup		•	•
32	Alarm Statistics	Reset Alarm		•	•
33	System Settings	User Settings		•	•
34	System Settings	Run Script		•	•
35	System Settings	Com Test		•	•
36	Statistics Module	Run Time Statistics		•	•

Table 1.38 User Authorizations Table

1.14.3. COPY SOFTWARE

This feature is used to copy the current software version of the controller to another controller or to acquire a copy of the current software version for backup or archival purposes.

This feature can only be utilized by the "Service" user.

IMPORTANT

Don't copy the software to another controller without the approval of the authorized service or the manufacturer. There are safety risks if the versions of the hardware and software don't match.

The procedure to copy the software to a USB flash disk

- Insert a USB flash disk into the USB port on the controller.
- Press the "Menu" keypad to open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Service" menu.
- Select the "System Settings" software button on the "Service" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "System Settings" menu.
- Select the "Copy Software" software button on the "System Settings" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to start the software copy process.
- The "Success! Software is copied" informational sliding message bar will be displayed when the copy process is successfully finished. The software version will be copied into the root directory of the USB flash disk.

Fig. 1.82 "Copy Software Operation Success" Informational Sliding Message Bar

The "Software could not be copied" error pop-up message will be displayed in case of a file recording, USB Flash Disk reading or any other file or media corruption problem. In this case you'll have to resolve the problem and then try to copy the software again.

1.14.4. UPGRADE SOFTWARE

IMPORTANT

It's a good practice to backup the database and the software before a software upgrade operation. The database may be required by your service provider to inspect the alarm history and the software backup would allow you to return to the last operational version in case of problems related to the software upgrade operation or the new software version. Refer to the **1.14.6.** *"DATABASE OPERATIONS"* section on page 70 and **1.14.3.** *"COPY SOFTWARE"* section on page 67 about backing up the database and the software.

This feature can only be utilized by the "Service" user.

The procedure to upgrade the software version

- Insert a USB flash disk which contains a software version into the USB port on the controller.
- Press the "Menu" keypad to open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Service" menu.
- Select the "System Settings" software button on the "Service" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "System Settings" menu.
- Select the "Upgrade Software" software button on the "System Settings" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Upgrade Software" window.

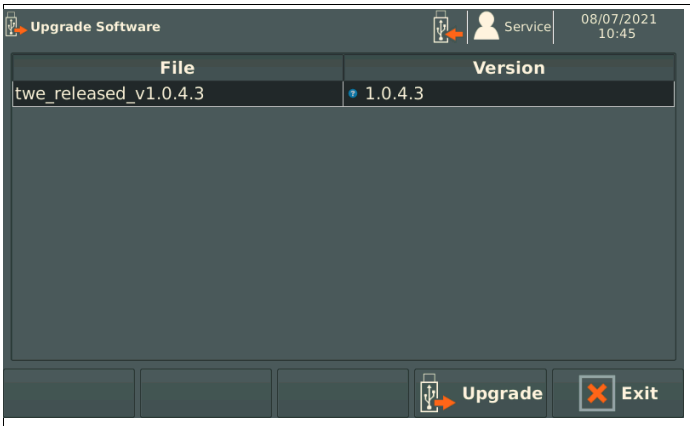


Fig. 1.83 Upgrade Software Window

- The software version files on the USB flash disk will be listed. Select the target file to install using the up-down direction keypads and press the **M4** keypad (*which corresponds to the "Upgrade" software button*) to start the software upgrade process.
- The controller will automatically restart when the software upgrade process is finished.

The installed software version should be checked and verified on the notification bar after the controller restarts to confirm that the software upgrade process was executed successfully. Refer to the **1.2.** *"PROGRAM SELECTION WINDOW"* section on page 4..

NOTE

The controller **must be** restored to its factory settings after a software upgrade operation (This procedure is explained in **1.12.** *"FACTORY"* section on page 30.). **The healthy and normal operation of the machine can't be guaranteed if this step is skipped.**

The procedure to upgrade from version 0.x to version 1.x

The software upgrade process will be different when upgrading the software from the 0.x versions to the 1.x versions. The standard software upgrade process explained in *"The procedure to upgrade the software version"* procedure on page 68 can't be used for a major version upgrade.

IMPORTANT

You must redefine your user programs, I/O definitions, setpoints, detergent definitions and reset your parameter customizations after a major software upgrade.

IMPORTANT

Refer to the **1.12.** *"FACTORY"* section on page 30 for the details of a factory reset procedure. Exporting and importing the customized settings is crucial if your customer requires to preserve some of their former settings.

- Acquire the "Factory.Default_v.1.x" file from your authorized technical service provider.
- The contents of this archived file (which contains the latest version file and a special script named "Autoload.sh") should be directly extracted to the root folder of your USB flash disk.
- Power off the machine.
- Insert the USB flash disk into the USB port of the control panel.
- Power on the machine.
- Wait for the control panel to automatically detect the "Autoload.sh" script on the USB flash disk and execute it.
- When the script execution finishes the control panel will power on and start up.
- Enter the "Factory" window on the "Service" menu. Refer to *"The procedure to enter the "Service" menu"* procedure on page 13.
- Select and set the proper values for your machine model on the "Machine Setup Options" window.
- Press the **M4** keypad (*which corresponds to the "Confirm" software button*).
- Select the proper actions on the "Factory Reset Options" window. Loading the factory default parameters, deleting all programs, setting the setpoints, deleting the detergent definitions, recreating the default I/O connections and uploading the AC Drive parameters actions must be selected on this menu screen. You must redefine your user programs, I/O definitions, setpoints, detergent definitions and reset your parameter customizations after a major software upgrade.
- Press the **M4** keypad (*which corresponds to the "Restore" software button*)
- Select and press the "OK" button on the "Yes" option for the question "Do you want to return to factory defaults for xxx machine and the AC Drive type xxx and motor xxx?"
- Be sure to receive the "Factory values have been loaded. Device will restart" message at the end of the reset process and wait for the control panel to restart.

1.14.5. RUN SCRIPT

The "Run Script" section presents a script selection list which acquires the scripts found in the root folder of the USB flash disk. You can select a script from the list and then execute it on the controller. It's used for advanced technical interventions. This section should preferably be used by the authorized service or the manufacturer.

1.14.6. DATABASE OPERATIONS

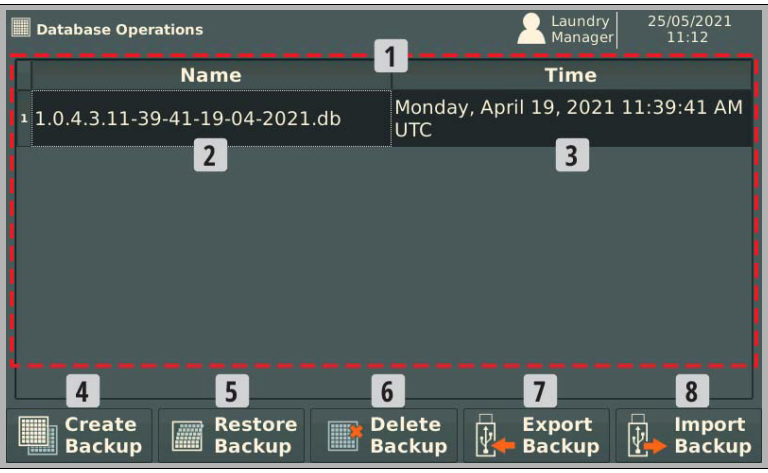


Fig. 1.84 Database Operations Window

No	Description
1	Database List
2	Database File Name Column
3	Database Creation Date and Time Column
4	Create Backup Software Button
5	Restore Backup Software Button
6	Delete Backup Software Button
7	Export Backup Software Button
8	Import Backup Software Button

Table 1.39 Database Operations Window Components

The "Database Operations" window is used to create, restore and delete backup files. These operations can be performed on the controller itself or on a USB flash disk connected to the USB port of the controller.

NOTE

The backup file list can contain up to 5 backup files. An existing database backup file has to be deleted to be able to backup an additional file when the list is full.

The procedure to create a database backup file

- Press the "Menu" keypad to open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Service" menu.
- Select the "System Settings" software button on the "Service" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "System Settings" menu.
- Select the "Database Operations" software button on the "System Settings" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Database Operations" window.
- Press the **M1** keypad (*which corresponds to the "Create Backup" software button*) to create a database backup in the recording space of the controller.

The "Create Backup Success" informational sliding message bar will be displayed if the database file creation process is successful. A sliding message bar with the error message "Create Backup Error" will be displayed in case of a database file creation error.

The created database file will be added to the list of database backup files.

Fig. 1.85 "Backup Creation Success" Informational Sliding Message Bar

The procedure to restore a database backup file

- Press the "Menu" keypad to open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.

- Press the “Confirmation/OK” keypad to open the “Service” menu.
- Select the “System Settings” software button on the “Service” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “System Settings” menu.
- Select the “Database Operations” software button on the “System Settings” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Database Operations” window.
- Select the database backup file to restore on the file list by pressing the up-down direction keypads.
- Press the **M2** keypad (*which corresponds to the “Restore Backup” software button*) to restore the selected database backup file back into the the active database.
- A confirmation dialog box with the message “*Do you want to restore xxx.db backup file?*” will be displayed. Select the “Yes” software button by pressing the direction keypads and press the “Confirmation/OK” keypad to apply your selection.

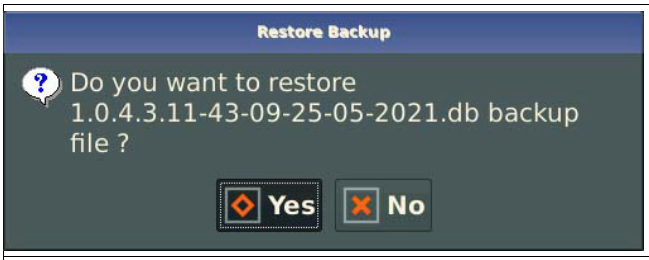


Fig. 1.86 Database Backup File Restoration Confirmation Dialog Box

- A dialog box with the informational message “Device will restart” will be displayed after the restore process is finished. Press the “Confirmation/OK” keypad to restart the controller.

Fig. 1.87 Controller Restart Information Dialog Box

The procedure to delete a database backup file

- Press the “Menu” keypad to open the “Main” menu.
- Select the “Service” software button on the “Main” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Service” menu.
- Select the “System Settings” software button on the “Service” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “System Settings” menu.
- Select the “Database Operations” software button on the “System Settings” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Database Operations” window.
- Select the database backup file to delete on the file list by pressing the up-down direction keypads.
- Press the **M3** keypad (*which corresponds to the “Delete Backup” software button*) to delete the selected database backup file from the active database.

- A confirmation dialog box with the message "*Do you want to delete xxx.db backup file?*" will be displayed. Select the "Yes" software button by pressing the direction keypads and press the "Confirmation/OK" keypad to apply your selection.

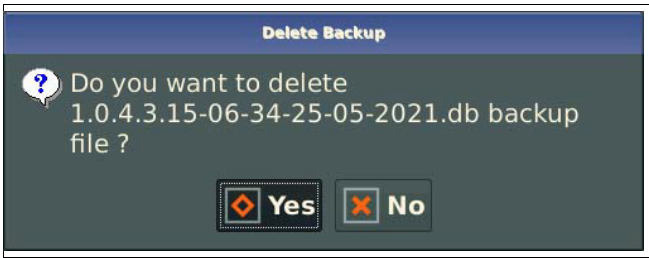


Fig. 1.88 Database Backup File Deletion Confirmation Dialog Box

The "Delete Backup Success" informational sliding message bar will be displayed if the database file deletion process is successful.

The deleted database file will be removed from the list of database backup files.

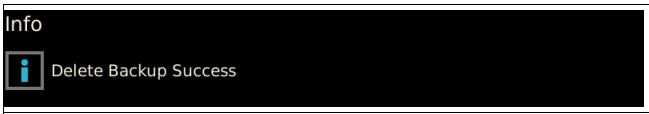


Fig. 1.89 "Backup Deletion Success" Informational Sliding Message Bar

The procedure to export a database backup file

NOTE

Keep your database file safe for later use.

- Insert a USB flash disk into the USB port on the controller with enough empty space to save a database file into it.
- Press the "Menu" keypad to open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Service" menu.
- Select the "System Settings" software button on the "Service" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "System Settings" menu.
- Select the "Database Operations" software button on the "System Settings" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Database Operations" window.
- Select the database backup file to export on the file list by pressing the up-down direction keypads.
- Press the **M4** keypad (*which corresponds to the "Export Backup" software button*) to export the selected database backup file to the USB flash disk.

The "Export Operation Success" informational sliding message bar will be displayed if the database file export process is successful.

Fig. 1.90 "Export Operation Success" Informational Sliding Message Bar

A sliding message bar with the error message "Export operation has failed. Details: The same file is already on the USB" will be displayed if there is already a database backup file with the same name in the USB flash disk.

Fig. 1.91 Sliding Error Message Bar about database backup filename match on the USB flash disk

The procedure to import a database backup file

NOTE

Importing a database does not indicate "restore database".

- Insert a USB flash disk containing the database file to import into the USB port on the controller.
- Press the “Menu” keypad to open the “Main” menu.
- Select the “Service” software button on the “Main” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Service” menu.
- Select the “System Settings” software button on the “Service” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “System Settings” menu.
- Select the “Database Operations” software button on the “System Settings” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Database Operations” window.
- Press the **M5** keypad (*which corresponds to the “Import Backup” software button*) to open a file list containing the database files in the USB flash disk.

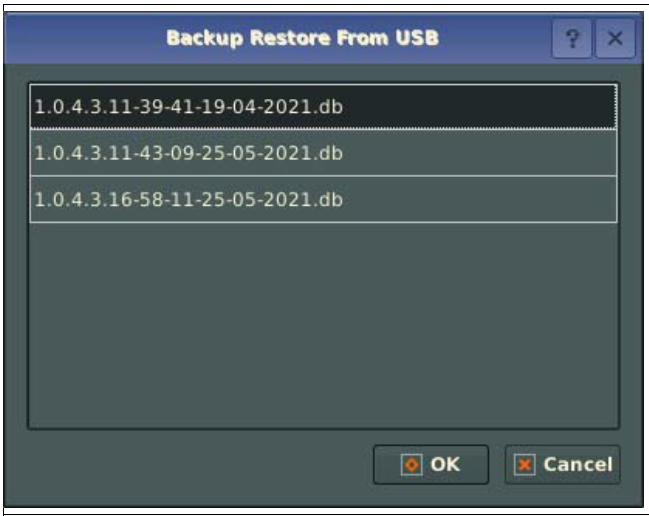


Fig. 1.92 Database File Import USB Flash Disk File Listing Window

- Select the database backup file to import on the file list by pressing the up-down direction keypads.
- Press the “Confirmation/OK” keypad.

The “Restore Backup From USB Success” informational sliding message bar will be displayed if the database file import operation is successful.

Fig. 1.93 “Import Database File Operation Success” Informational Sliding Message Bar

A confirmation dialog box with the message “The same file is already present on the backup directory. Do you want to overwrite it?” will be displayed if there is already a database backup file with the same name in the backup directory. Select the “Yes” software button by pressing the direction keypads and press the “Confirmation/OK” keypad to apply your selection if you want to overwrite the existing file.

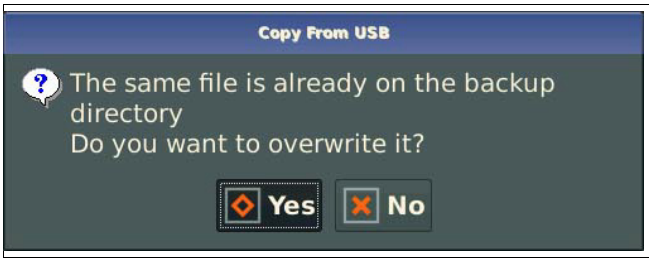


Fig. 1.94 Confirmation dialog box to overwrite database backup file with the same filename in the backup directory

1.14.7. SET DATE/TIME

The "Set Date/Time Option" in the program allows the user to set the date and time to a specific value that represents the system time.

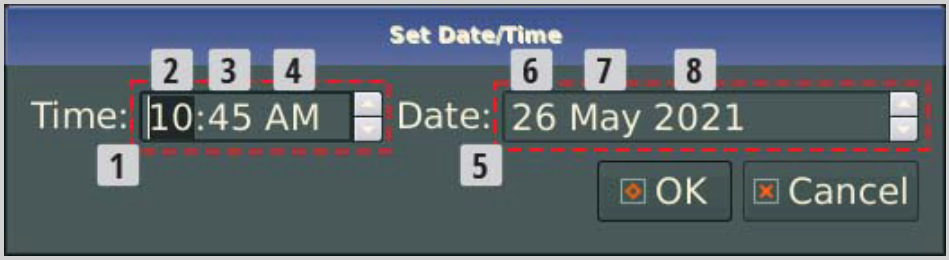


Fig. 1.95 Set Date/Time Window

No	Description
1	Time Box
2	Hour Digit
3	Minute Digit
4	AM/PM Setting
5	Date Box
6	Day Digit
7	Month Name Digit
8	Year Digit

Table 1.40 Date/Time Window Components

The procedure to set the date and the time

- Press the "Menu" keypad to open the "Main" menu.
- Select the "Service" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Service" menu.
- Select the "System Settings" software button on the "Service" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "System Settings" menu.
- Select the "Set Date/Time" software button on the "System Settings" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Set Date/Time" window.
- The cursor will directly blink on the "Hour" digit of the "Time" box. Press the up-down direction keypads to change the hour value. The hour values will cycle between "1 AM" to "12 PM". The AM/PM setting (*time period*) will change according to the selected hour value. Press the right direction keypad to skip to the "Minute" digit after setting the "Hour" digit.
- Press the up-down direction keypads to change the minute value. The minute values will cycle between "00" and "59". Press the right direction keypad to skip to the "AM/PM" setting after setting the "Minute" digit. You can also switch back to the "Hour" digit by pressing the left direction keypad.
- You can change the time period between AM and PM in the "AM/PM" setting digit by pressing the up-down direction keypads.
- Press the "Confirmation/OK" keypad to skip to the "Day" digit of the "Date" box. You can press the "Confirmation/OK" keypad to directly switch to the "Day" digit if you don't want to set the "Time" value.
- Press the up-down direction keypads to change the day value. The day values will cycle between "01" and "31" (based on the month). The system won't allow you to select a wrong day value for a specific month. Press the right direction keypad to skip to the "Month Name" digit after setting the "Day" digit.
- Press the up-down direction keypads to change the month name value. The month name values will cycle between "January" and "December". The system will change the day value according to the selected month name if it's set as "31". Press the right direction keypad to skip to the "Year" digit after setting the "Month Name" value.
- Press the up-down direction keypads to change the year value.
- Press the "Confirmation/OK" keypad to switch the cursor onto the "OK" software button.
- Press the "Confirmation/OK" keypad to save your the time and date value modifications.

1.14.8. COMMUNICATION TEST (COM TEST)

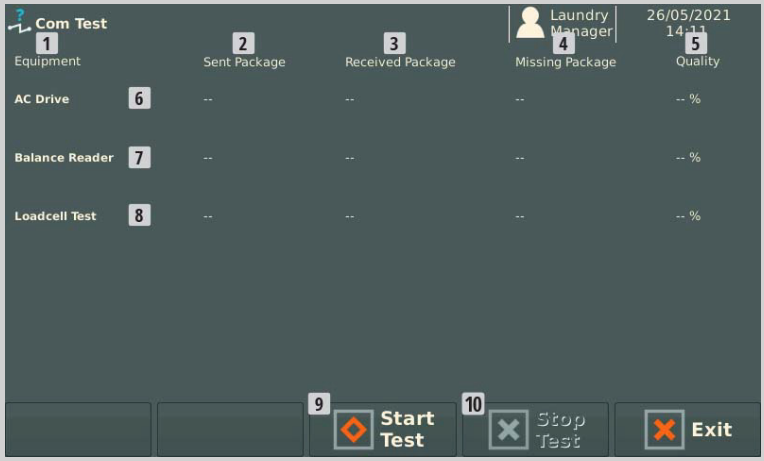


Fig. 1.96 Communication Test Window

No	Description
1	Equipment Column
2	Sent Package Column
3	Received Package Column
4	Missing Package Column
5	Signal Quality Column
6	AC Drive Data Row
7	Balance Reader Data Row
8	Loadcell Test Data Row
9	Start Test Software Button
10	Stop Test Software Button

Table 1.41 Communication Test Window Components

The communication test window does test the quality of the communication between the control panel and the 3. party components capable of responding to communication testing signals. These components are the AC Drive, the Balance Reader and the Loadcell Amplifier.

Each execution of the test will send 20 signals to the AC Drive and 10 signals to the Balance Reader and the Loadcell Amplifier. The ratio between the total amount of the signal replies to the total amount of sent signals will determine the quality of the communication.

The test data rows (*Equipments*) will change based on the machine configuration.

The procedure to test the communication quality

- Press the “Menu” keypad to open the “Main” menu.
- Select the “Service” software button on the “Main” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Service” menu.
- Select the “System Settings” software button on the “Service” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “System Settings” menu.
- Select the “Com Test” software button on the “System Settings” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Com Test” window.
- Press the **M3** keypad (*which corresponds to the “Start Test” software button*) to start a communication test.
- The controller will send the communication signals to the components and wait for the return signals. When the test is finished the ratio between the sent signals and received replies will be calculated and the ratio value will be displayed on the “Quality” column.

You can stop a test without waiting for it to be completed by pressing the **M4** keypad (*which corresponds to the “Stop Test” software button*).

1.14.9. ACTIVE ALARMS

Fig. 1.97 Active Alarms Window

No	Description
1	Active Alarms Icon and Count
2	ID Column of the Active Alarm
3	Name Column of the Active Alarm
4	Alarm Statistics Window Software Button
5	Exit Software Button

Table 1.42 Active Alarms Window Components

The "Active Alarms" window lists the ID numbers and names of the currently active alarms. It also contains a software button to directly access the "Alarm Statistics" window. Press the **M4** keypad (*which corresponds to the "Alarm Statistics" software button*) to open the "Alarm Statistics" window. Refer to the **1.11.1.** *"ALARM STATISTICS (HISTORY)"* section on page 27 for the explanation of this window.

An active alarm entry will be automatically removed from this list when either the cause of the alarm has been fixed or the alarm message has been acknowledged.

Alarms which cause a running program to stop can't be simply cleared from the active alarm list by acknowledging them. These kind of alarms have to be attended and the cause of the alarm has to be fixed for their active alarm entry to be removed from this list.

Some alarms cause the siren (*optional*) to wail. The siren ceases to wail when the alarm message box is acknowledged.

A pulsating alarm icon will be displayed on the notification bar when an alarm is triggered. The number of the unattended and/or unacknowledged alarms will be displayed next to this alarm icon. Refer to the *"Alarm Messages Table"* on page 81

Fig. 1.98 Active Alarm Icon on the Notification Bar

The procedure to view the active alarms

- Press the "Menu" keypad to open the "Main" menu.
- Select the "Active Alarms" software button on the "Main" menu by pressing the direction keypads.
- Press the "Confirmation/OK" keypad to open the "Active Alarms" window.

1.15. INTERFERING PROGRAMS

The controller automatically passes over to the next subphase when a subphase is finished, and passes over to the next phase when a phase is completed. The operator can interfere to phase and subphase transitions when it's required.

NOTE

It is usually not recommended to jump phases and/or subphases. Such an interference would only degrade the washing quality. Also although the phases and subphases can be rolled back, doing so would both waste more washing materials and unnecessarily fray out the textile.

NOTE

The last phase "Extraction" can't be paused or skipped. It can only be cancelled.

The procedure to skip a program phase

- Press the "Stop" keypad on the control panel and pause the running program.
- Press the left-right direction keypads to select the target phase on the "Program Phase Bar".
- Press the "Confirmation/OK" keypad to start the selected phase.

NOTE

If you press the "Start" keypad without pressing the "Confirmation/OK" keypad at this stage, the program will continue to be executed from the point where it was paused.

At this stage the controller software will stop executing the current phase (*except the "Extraction" phase*) and start to execute the first subphase of the selected phase immediately.

The procedure to skip a program subphase

- Press the "Stop" keypad on the panel and pause the running program.
- Press the up-down direction keypads to select the target subphase on the "Subphase List". A subphase can't be selected in the last phase (*Extraction*) because it has only one subphase.
- Press the "Confirmation/OK" keypad to start the selected subphase.

At this stage the controller software will stop the execution of the current subphase and start to execute the selected subphase.

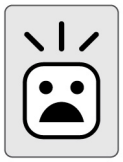
The aforementioned phase and subphase skipping procedures are achieved by pausing a running process. By using the "Jump" keypad a subphase (*and phases*) can be skipped without pausing a running program. This method is most suitable to skip a few subphases as fast as possible.

The procedure to skip a subphase or phase by pressing the "Jump" keypad

- Press the "Jump" keypad on the control panel until the target subphase is selected. Each press of the "Jump" keypad will immediately start the next subphase.

At this stage the controller software will stop the execution of the current subphase and immediately start to execute the selected subphase.

1.15.1. PAUSING AND STOPPING PROGRAMS



WARNING

Don't move away from the visual and aural range where you can get these warnings. Don't leave the machine unattended.

Reasons to pause a program

- When you have to move away from the visual and aural range
- When you have to change the step setpoints
- **Advanced Use:** When you have to remove stains of heavy contaminated laundry by soaking. If this treatment is used it should be considered that the controller software will drain the water in the drum in 60 minutes after pausing it.

NOTE

A program can't be paused during the "Extraction" phase. Press the "Stop" keypad twice to stop or cancel a program during the "Extraction" phase.

The procedure to pause a program

- Press the "Stop" keypad on the control panel at any stage except the "Extraction" phase.
- When the program is paused the "Running Status" cell in the "Program Monitoring Frame" will display the "Pause" icon and the "Paused" text.
- Press the "Start" keypad to restart a paused program

Reasons to stop/cancel a program

- Operator errors: Wrong program selection, detergent loading errors etc.
- Failures: Water leakage etc.

The loading door won't open when the program is cancelled and the drum contains water. Loading door will open only if the water level in the drum stays below the loading door. In that case the operator either should execute the "Only Drain" factory program (*Program No 13*) or wait for the factory default automatic drainage duration of 5 minutes after program cancellation.

A program shouldn't have been started yet to be able to open the loading door after it has been closed. In that case press the "Stop" keypad twice to cancel the program and release the loading door locking mechanism.

Program Behavior After Power Failure

An unfinished program will directly be displayed as in the "stopped" state when the power is restored again after a power failure, shutdown event etc. The "Running Status" cell in the "Program Monitoring Frame" will display the "Stop" icon and the "Stopped" text. After closing the message box by pressing the "Confirmation/OK" keypad the operator can either:

- cancel the program completely by pressing the "Stop" keypad.
- or continue to run the program by pressing the "Start" keypad and answering the question "Do you want to continue the program?" with the "Yes" option.

During a power failure, shutdown event etc the drainage valve will be opened and the water will be poured out of the drum because the drainage valve is an electrically controlled "Normally Open" (*NO*) valve.

The procedure to cancel a program

- Press the "Stop" keypad twice at any program stage.
- Answer the question "Do you want to cancel the program?" with the "Yes" option.

IMPORTANT

If there is water in the drum while a program is paused by pressing the "Stop" keypad, the controller will automatically drain the water in the drum in 60 minutes as a safety precaution.

If there is water in the drum while a program is cancelled by pressing the "Stop" keypad twice, the controller will automatically drain the water in the drum in 5 minutes as a safety precaution.

1.16. SYSTEM NOTIFICATIONS

The purpose of system notifications is to provide a visual indication that something important has happened. Notifications can be used for a variety of purposes, such as reminding the user of an upcoming event or alerting them to new messages.

1.16.1. ALARMS

The operator will be notified with a message box in center of the display when an "Alarm" is raised. The machine will continue to operate and won't stop its process. The operator is forced to see the notification and can acknowledge the message by pressing the "Confirmation/OK" keypad.

ID	Message	Description	Siren	Warning	Program Stop
11	Drain Fail	Drain fail (based on parameter 72)	•	•	
8	Level Time Out	Water intake couldn't complete on time (based on parameter 82)	•	•	
14	Heater Fail	Heater fail (based on parameter 100)	•	•	
10	Temperature Tolerance	Actual temperature is out of the limits of "set program target temperature + tolerance temperature" (based on parameter 83)	•	•	
20	Level Leakage	If the required water level isn't reached and the water intake operation is retried X times then this alarm is raised. The value of "X" is defined in parameter 98.	•	•	
23	Tilting Switch Alarm	If the machine couldn't reach tilting position on time then this alarm is raised (based on parameter 104)	•	•	
24	Seating Switch Alarm	If the machine couldn't reach the seated position on time then this alarm is raised (based on parameter 105)	•	•	
26	Max Temperature Alarm	If the temperature value is 6 °C (*11 °F*) higher than the max temperature value then this alarm is raised (based on parameter 9). The heating output will be shut down but the program will continue to be executed.	•	•	
28	Calibration File Could Not Be Read	If the controller couldn't read the calibration file then this alarm is raised		•	
31	Balance Reader Communication Error (*Check the communication cable*)	If the controller couldn't communicate with the Balance Reader over modbus then this alarm is raised		•	
17	Vibration Occured (*Balance Reader*)	If excessive vibrations do occur during the extraction phase then this alarm is raised		•	
18	Vibration Occured (*Vibration Switch*)	If the mechanical vibration switch is triggered then this alarm is raised		•	
47	Loading Door Couldn't Be Unlocked	This alarm will be raised if the electric loading door lock couldn't open within 7 seconds after the unlock signal is sent	•	•	

Table 1.43 Alarm Messages Table

1.16.2. FAULTS

The operator will be notified with a message box in center of the display when a “Fault” is raised. The machine will stop its operation and pause its process. The operator is forced to see the notification and can acknowledge the message by pressing the “Confirmation/OK” keypad. The paused process can be resumed by pressing the “Start” keypad.

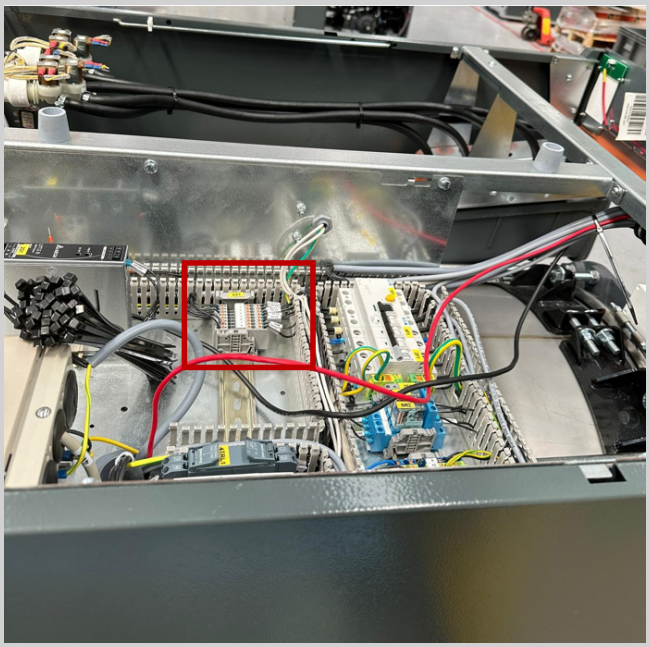
ID	Message	Description	Siren	Warning	Program Stop
12	Linen Loading Error	If the vibration alarm is raised 5 times then this alarm is raised	•	•	•
13	Water Fill Fail	Water intake couldn't complete on time (30 min)	•	•	•
	Heater Fail	If the heating couldn't complete on time (20 min) then this alarm is raised	•	•	•
21	AC Driver Error (Please turn off machine then turn on after 1 min)	If an AC drive fault occurs then this alarm is raised	•	•	•
22	Loading Door Alarm	If the loading door is open while program is running then this alarm is raised	•	•	•
27	Emergency Stop Alarm	If the emergency button is pressed then this alarm is raised	•	•	•
29	AC Driver Communication Error (Check the communication cable)	If the controller cannot communicate with the AC drive over modbus then this alarm is raised	•	•	•
30	Motor Temperature Overload	If the motor temperature is high then this alarm is raised	•	•	•
19	Drum Doesn't Rotate (Turn the machine off and turn it back on after 1 minute)	If the drum doesn't rotate then this alarm is raised	•	•	•
32	AC Driver Over Current	If the AC drive has Over Current then this alarm is raised	•	•	•
33	AC Driver Over Voltage	If the AC drive has Over Voltage then this alarm is raised	•	•	•
34	AC Driver Drive Over Load	If the AC drive has Over Voltage then this alarm is raised	•	•	•
35	AC Driver Drive Over Heat	If the AC drive has Over Heat then this alarm is raised	•	•	•
36	AC Driver Braking Resistor Over Heat	If the AC drive has Over Heat for Braking Resistor then this alarm is raised	•	•	•
37	AC Driver PID Feedback Loss	If the AC drive has PID Feedback Loss then this alarm is raised	•	•	•
38	AC Driver External Fault	If the AC drive has External Fault then this alarm is raised	•	•	•
39	AC Driver Hardware Fault	If the AC drive has Hardware Fault then this alarm is raised	•	•	•
40	AC Driver Motor Over Load	If the AC drive has Motor Over Load then this alarm is raised	•	•	•
41	AC Driver PG Hardware Fault	If the AC drive has PG Hardware Fault then this alarm is raised	•	•	•
42	AC Driver Main Circuit Under Voltage	If the AC drive has Main Circuit Under Voltage then this alarm is raised	•	•	•
43	AC Driver Under Voltage	If the AC drive has Under Voltage then this alarm is raised	•	•	•
44	AC Driver Phase Input or Output Loss	If the AC drive has Phase Input or Output Loss then this alarm is raised	•	•	•
45	AC Driver Operator Connection Fault	If the AC drive has Operator Connection Fault then this alarm is raised	•	•	•
48	Laundry Scale Communication Error (Check the communication cable)	If the controller couldn't communicate with the Laundry Scale System over modbus then this alarm is raised	•	•	•
49	Loading Door Lock Switch Fail	If the electric door lock couldn't locked then this alarm raised	•	•	•
50	AC Driver Ground Fault	If the AC drive has Ground Fault then this alarm is raised	•	•	•
51	AC Driver Fuse Disconnected	If the AC drive's fuse disconnected then this alarm is raised	•	•	•
52	AC Driver Charging Circuit Error	If the AC drive's charging circuit has error then this alarm is raised	•	•	•
15	The detergent drawer is not in position	If the detergent drawer is not placed in then this alarm raised	•	•	•
46	Loading Door Couldn't Be Locked	This alarm will be raised if the electric loading door lock couldn't close within 7 seconds after the lock signal is sent	•	•	

Table 1.44 Fault Messages Table

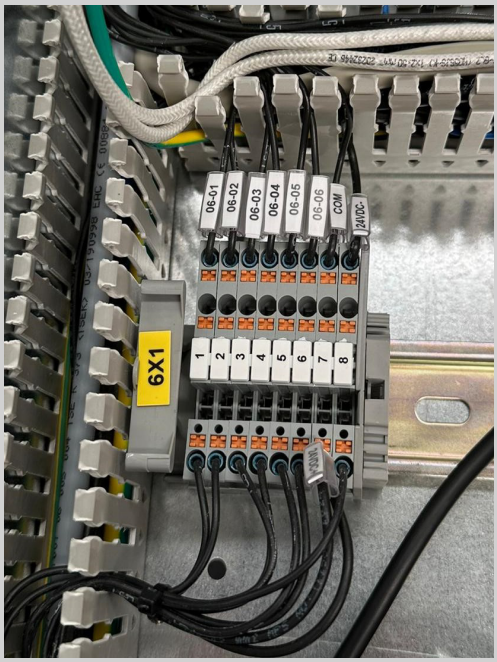
1.17. SIGNAL OUTPUT TERMINAL FOR THIRD PARTY CHEMICAL SUPPLY SYSTEMS

The "Signal Output Terminal for Third Party Chemical Supply Systems" is a vital interface that ensures precise communication between chemical supply systems and control units. It enhances safety, efficiency, and reliability by providing real-time data and remote control capabilities. This integration supports quality standards and regulatory compliance, optimizing performance and reducing the risk of hazardous incidents in industrial and laboratory settings.

These models are shipped out from the factory with 24V DC common voltage provided. The signal and the detergent box water valve are used in parallel. These models don't need any 24V DC supply in the common terminal. These models do use the 6X1 electric terminal for external signals of the detergents as seen in Fig. 1.99 "Location and Detail of the 6X1 Detergent Signal Terminal" on page 83.



Location of the 6X1 Terminal



Close-up Detail of the 6X1 Terminal

Fig. 1.99 Location and Detail of the 6X1 Detergent Signal Terminal

1.17.1. EXTERNAL CHEMICAL UTILIZATION

Some parameters have to be set according to the third party chemical supply system manufacturer's specifications before starting to use the external chemical supply system. The following parameters can be set in any sequence.

- The 129. parameter might have to be set to "0" (zero). This parameter sets the controller to use "Time Control" for the detergent output valve's "ON" duration.
- The 19. parameter sets the quantity of the third party chemical system signal outputs. This parameter's minimum value is "3" and maximum value is "9". This value sets the number of the detergent boxes in the program editor window. All of the models can handle up to 9 chemical system signal outputs.
- The parameters between 20 to 25 and 111 to 112 have to be set separately with the right detergent flow durations. These parameters MUST BE defined so that the correct quantity (set in the 19. parameter) of detergent boxes are set. If the 19. parameter is set to "4" then all four parameters from 20 to 23 have to be defined. The detergent flow durations are set in the "Detergent Definition" screen
- If the external detergent unit has six pumps, then the 6. internal output might have to be set as a separate detergent box (*pump*) (*Status "0"*) in the 144. system parameter (*Operation status of Detergent Box F*). If it's set as a separate detergent box than the quantity of the detergent boxes has to be set to "6" in the 19. system parameter.

1.18. STROBE COMMUNICATION PROTOCOL SUPPORT WITH A CHEMICAL DOSING SYSTEM

The controller software is capable to send the necessary strobe data packages used by a chemical supply system (*which is also known as the HELMS protocol*). The controller software can receive the external detergent dosage data from a chemical supply system and can send the customer number, laundry weight and running program number information to the third party chemical supply system.

The software will disable the first two internal detergent boxes (A and B) when the chemical dosing system communication protocol support is enabled and the dosing for the external detergents will be controlled by the external chemical supply system.

The connection terminals of these 2 internal detergent boxes have to be connected to the matching terminals on the external chemical supply system. The rest of the internal detergent box outputs will be released (their I/O assignments will be disabled) and their terminals will be free to be used for different purposes.

NOTE

The internal detergent box terminal A will be used for the HELMS protocol data (Terminal 11 for MWS25/MWS35/MWS45/MWS55/MWS65/MWS85 models with the front loading detergent boxes) and the internal detergent box terminal B will be used for the HELMS protocol clock (Terminal 12 for MWS25/MWS35/MWS45/MWS55/MWS65/MWS85 models with the front loading detergent boxes).

The procedure to enable the strobe communication protocol support

- Login as an authorized user that has access rights to the “Factory” window.
- Press the “Menu” keypad and open the “Main” menu.
- Select the “Service” software button on the “Main” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Service” menu.
- Select the “Factory” software button on the “Service” menu by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to open the “Factory” window.
- Browse to and select the “HELMS protocol active” checkbox in the single choice options area of the “Machine Setup Options” window by pressing the direction keypads. Refer to the Programming Manual for “Machine Setup Options” window browsing and setting procedure details.
- Press the “Confirmation/OK” keypad to enable or to disable the “HELMS protocol active” option. The checkbox will be checked when it is enabled and be unchecked/emptied when it is disabled.
- Press the **M4** keypad on the “Machine Setup Options” window (*which corresponds to the “Confirm” software button*) to switch to the “Factory Reset Options” window of the “Factory” menu
- Press the **M4** keypad on the “Factory Reset Options” window (*which corresponds to the “Restore” software button*) to start the factory reset procedure.
- A confirmation dialog box will be displayed.
- Select the “Yes” software button by pressing the direction keypads.
- Press the “Confirmation/OK” keypad to confirm the message.
- A sliding message bar with the message *“Factory values have been loaded. Device will restart.”* which includes a countdown timer will be displayed.

Fig. 1.100 “Factory Reset Restart” Warning Sliding Message Bar

- The controller will be turned off when the countdown ends.

- The controller will be restarted automatically and the strobe communication protocol support (*HELMS protocol support*) will be enabled.

The controller software will only send the selected program number to the external chemical supply system when only the "HELMS protocol active" checkbox has been checked (*enabled*) on the factory menu. In this case the laundry weight and customer number data will be sent as "0".

The "Laundry weight support" checkbox also has to be checked on the "Machine Setup Options" window to additionally send the laundry weight and the customer number data to the external chemical dosing system.

The operator will be asked to enter the laundry weight and the customer number when starting a program if both the "HELMS protocol active" option and the "Laundry weight support" option have been enabled.

The procedure to enter the Laundry Weight and the Custom Number

- If **only** the "HELMS protocol active" option is enabled then,
  - The "Laundry Weight Manual Entry" window will be displayed before the program is started when the "Start" keypad is pressed on the "Program Selection" window.
  - Enter the weight data manually by pressing the direction keypads.
  - Press the **M4** keypad (*which corresponds to the "Run" software button*) to acknowledge the weight data and start the program.
- The process for the "helms + loadcell" condition
  - The "Laundry Weight Automatic Entry" window will be displayed before the program is started when the "Start" keypad is pressed on the "Program Selection" window.
  - The weight data that is provided by the loadcell system will be displayed.
  - Press the **M4** keypad (*which corresponds to the "Run" software button*) to acknowledge the weight data and start the program.
- The process for the "helms + loadcell + customer number" condition
  - The "Laundry Weight Automatic Entry" window will be displayed before the program is started when the "Start" keypad is pressed on the "Program Selection" window.
  - Press the **M4** keypad (*which corresponds to the "Run" software button*) to acknowledge the weight data.
  - The "Customer Number Entry window will be displayed when the laundry weight has been acknowledged.

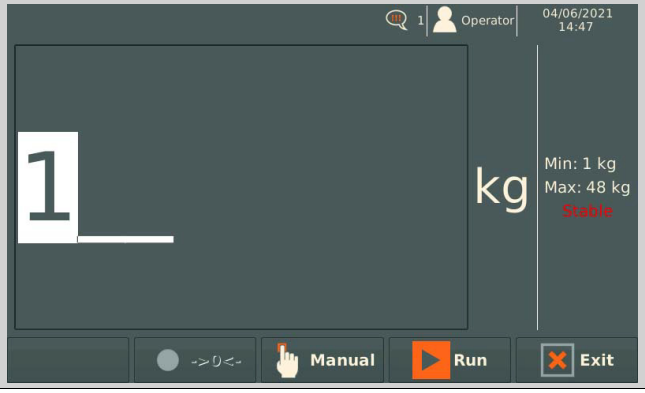


Fig. 1.101 Laundry Weight Manual Entry Window

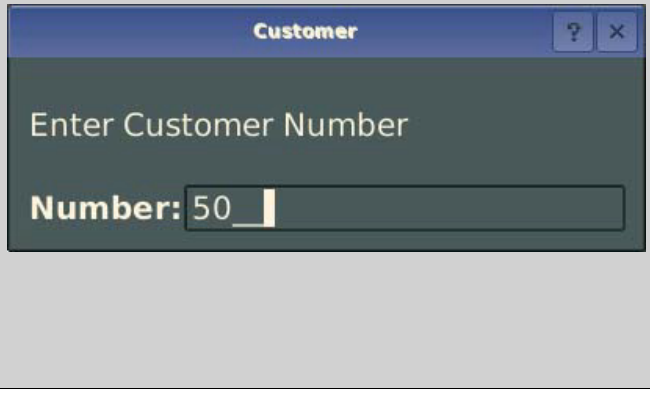


Fig. 1.102 Customer Number Entry Dialog Window

- Enter the customer number by pressing the up-down direction keypads.
- Press the "Confirmation/OK" keypad to start the program.

The relevant HELMS data will be sent to the external chemical supply system via the HELMS communication terminals and the external chemical supply system will administer the chemical dosing accordingly.

2. APPENDIXES - CONTROL PANEL INSTRUCTIONS

2.1. Appendix 1: Parameter Lists

The values in these lists correspond to factory set controllers based on particular machine options. These values will change in case of a modification in the options and/or parameters. The controller has to be reset to set the values back to their factory values. The machine option settings can be automatically applied to the parameters during a factory reset operation by pre-selecting those options on the “Factory / Machine Setup” window. Refer to the **1.12.** *"FACTORY"* section on page 30 for details about the factory reset procedure.

2.1.1. Appendix 1.A: Parameters of the MWS25/MWS35/MWS45 Models

No	Parameter Description	Unit	Factory Default			Min Value		Max Value
			MWS25	MWS35	MWS45			
1	Machine model **Important !:** This parameter value shouldn’t be changed 0: WE10, 1: WE15, 2: WE18, 4: WE24, 5: WE28 6:WE40 7:WE60 8: WE110		0	1	2	0		8
2	Interface language selection 0:English, 1:Turkish, 2:Italian, 3:Turkmen, 4:Russian, 5:Romanian, 6:Traditional Chinese, 7:Simplified Chinese, 8:French, 9:Croatian, 10:Dutch, 11:German, 12:Polish, 13:Spanish 14:Portuguese, 15:Swedish		0	0	0	0		15
3	Right/left rotation duration of the drum during tilting phase expressed in seconds	sec	5	5	5	0		300
4	Automatic logout duration of the logged in user expressed in minutes	min	20	20	20	2		60
5	Tolerance value of the level to start the water refill process expressed in cm (inch) **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	cm	3	3	3	**A**	3	15
						B	3	15
						C	3	15
		in	1,18	1,18	1,18	**A**	1,18	5,9
						B	1,18	5,9
						C	1,18	5,9
6	Tolerance value of the level to start the water refill process expressed liter (gallon) **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	l	10	15	15	**A**	5	20
						B	5	30
						C	5	30
		gal	2,64	3,96	3,96	**A**	1,32	5,28
						B	1,32	7,92
						C	1,32	7,92
7	Machine measurement unit type 0: Metric Units 1: Imperial Units		0	0	0	0		1
8	Maximum flowmeter value which can be used in water intake subphase during program editing expressed in liter (gallon)	l	0	0	0	0		9999
		gal	0	0	0	0		2641
9	Maximum temperature value which can be used during program editing expressed in °C (°F) **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	°C	90	90	90	**A**	30	90
						B	30	90
						C	30	90
		°F	194	194	194	**A**	86	194
						B	86	194
						C	86	194
10	Maximum available water level which can be used in washing subphase during program editing The levels defined in 10. and 11. parameters are set in the parameters between 13 and 18.		5	5	5	1		5
11	Maximum available water level which can be used in rinsing subphase during program editing The levels defined in 10. and 11. parameters are set in the parameters between 13 and 18.		6	6	6	2		6
12	Minimum water level for the heater to be activated expressed in cm (inch) If the level is under this value the heater won’t be activated. **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	cm	22	22	22	**A**	22	22
						B	22	22
						C	22	22
		in	8,66	8,66	8,66	**A**	8,66	8,66
						B	8,66	8,66
						C	8,66	8,66
13	Water height in the drum corresponding to the 1. level expressed in cm (inch) These height values shouldn't be changed unless specifically approved by the dealer, the manufacturer, or the detergent supplier. **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	cm	25	26	26	**A**	23	27
						B	22	28
						C	22	28
		in	9,84	10,23	10,23	**A**	9,05	10,6
						B	8,66	11
						C	8,66	11

No	Parameter Description	Unit	Factory Default			Min Value		Max Value
			MWS25	MWS35	MWS45			
14	Water height in the drum corresponding to the 2. level expressed in cm (inch) These height values shouldn't be changed unless specifically approved by the dealer, the manufacturer, or the detergent supplier. **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	cm	27	28	28	**A**	27	29
						B	28	30
						C	28	30
		in	10,6	11,02	11,02	**A**	10,6	11,4
						B	11	11,8
						C	11	11,8
15	Water height in the drum corresponding to the 3. level expressed in cm (inch) These height values shouldn't be changed unless specifically approved by the dealer, the manufacturer, or the detergent supplier. **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	cm	31	30	30	**A**	29	32
						B	30	32
						C	30	31
		in	12,2	11,8	11,8	**A**	11,4	12,6
						B	11,8	12,6
						C	11,8	12,2
16	Water height in the drum corresponding to the 4. level expressed in cm (inch) These height values shouldn't be changed unless specifically approved by the dealer, the manufacturer, or the detergent supplier. **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	cm	33	32	31	**A**	32	34
						B	32	33
						C	31	32
		in	12,99	12,6	12,2	**A**	12,6	13,4
						B	12,6	12,99
						C	12,2	12,6
17	Water height in the drum corresponding to the 5. level expressed in cm (inch) These height values shouldn't be changed unless specifically approved by the dealer, the manufacturer, or the detergent supplier. **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	cm	35	33	32	**A**	34	36
						B	33	34
						C	32	33
		in	13,78	12,99	12,6	**A**	13,4	14,2
						B	12,9	13,4
						C	12,6	12,9
18	Water height in the drum corresponding to the 6. level expressed in cm (inch) These height values shouldn't be changed unless specifically approved by the dealer, the manufacturer, or the detergent supplier. **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	cm	37	34	33	**A**	36	37
						B	34	34
						C	33	34
		in	14,56	13,4	12,9	**A**	14,2	14,56
						B	13,4	13,4
						C	12,9	13,4
19	Detergent box quantity For WE20 and WE40 models this parameter sets just the external unit's detergent box quantity. These models aren't affected by this parameter for the internal detergent boxes.		5	5	5	3		9
20	Water flow duration for detergent box A expressed in seconds	sec	30	30	30	0		120
21	Water flow duration for detergent box B expressed in seconds	sec	30	30	30	0		120
22	Water flow duration for detergent box C expressed in seconds	sec	30	30	30	0		120
23	Water flow duration for detergent box D expressed in seconds	sec	30	30	30	0		120
24	Water flow duration for detergent box E expressed in seconds	sec	30	30	30	0		120
25	Water flow duration for detergent box F expressed in seconds	sec	30	30	30	0		120
26	Status of the external tilting switch box 0: No external switch box 1: External switch box without direction buttons 2: External switch box with direction buttons		0	0	0	0		2
27	Contact type of the motor temperature protection sensor 0: NO (Normally Open) 1: NC (Normally Closed)		1	1	1	0		1
28	Rotation speed of the drum in the disentangle process after extraction expressed in rpm	rpm	12	12	12	10		20
29	Heater type of the machine 0: Electric 1: Steam 2: Dual Heating 3: No heater		0	0	0	0		3
30	Loading Door Open Temperature Value		0	0	0	0		70
31	AC Drive Modbus Slave ID		1	1	1	0		255
32	AC Drive Model (Automatically selected based on the factory configuration)		82	83	84	0		99

No	Parameter Description	Unit	Factory Default			Min Value		Max Value
			MWS25	MWS35	MWS45			
33	Rotation speed of the drum during the initial opposite direction turn expressed in "rpm x 10" The value should be entered as 10 times of the target value. For example for 42 rpm the value should be 420. *The factory values may change according to the AC Drive model and the software version. The values listed here are for the Yaskawa AC Drives and for the latest software versions as of the release date of the Operating Manual. These values can only be edited by the manufacturer and they are being updated to the AC Drive during software updates. The values are only listed as reference information.*	rpm x 10	40	40	60	0		1000
34	Rotation speed of the drum in the 1. extraction step expressed in rpm **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	rpm	43	43	42	**A** **B** **C**	0 0 0	600 600 600
35	Rotation speed of the drum in the 2. extraction step expressed in rpm **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	rpm	81	81	90	**A** **B** **C**	0 0 0	600 600 600
36	Rotation speed of the drum in the 3. extraction step expressed in rpm **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	rpm	90	90	130	**A** **B** **C**	0 0 0	600 600 600
37	Rotation speed of the drum in the 4. extraction step expressed in rpm **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	rpm	120	120	250	**A** **B** **C**	0 0 0	600 600 600
38	Rotation speed of the drum in the 5. extraction step expressed in rpm **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	rpm	330	330	360	**A** **B** **C**	0 0 0	600 600 600
39	Rotation speed of the drum in the 6. extraction step expressed in rpm **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	rpm	490	490	450	**A** **B** **C**	0 0 0	600 600 600
40	Rotation speed of the drum in the 7. extraction step expressed in rpm **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	rpm	520	520	500	**A** **B** **C**	0 0 0	600 600 600
41	Rotation speed of the drum in the 8. extraction step expressed in rpm **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	rpm	570	570	550	**A** **B** **C**	0 0 0	600 600 600
42	Rotation speed of the drum in the 9. extraction step expressed in rpm **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	rpm	600	600	600	**A** **B** **C**	0 0 0	600 600 600
43	Rotation speed of the drum in the 10. extraction step expressed in rpm **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	rpm	1000	1000	1110	**A** **B** **C**	0 0 0	1200 1200 1110
44	Duration of the acceleration phase in the 1. extraction step expressed in seconds	sec	1	1	1	1		120
45	Duration of the acceleration phase in the 2. extraction step expressed in seconds	sec	5	5	7	1		120
46	Duration of the acceleration phase in the 3. extraction step expressed in seconds	sec	3	3	3	1		120
47	Duration of the acceleration phase in the 4. extraction step expressed in seconds	sec	10	10	10	1		120
48	Duration of the acceleration phase in the 5. extraction step expressed in seconds	sec	10	10	10	1		120
49	Duration of the acceleration phase in the 6. extraction step expressed in seconds	sec	10	10	10	1		120
50	Duration of the acceleration phase in the 7. extraction step expressed in seconds	sec	10	10	10	1		120
51	Duration of the acceleration phase in the 8. extraction step expressed in seconds	sec	10	10	10	1		120
52	Duration of the acceleration phase in the 9. extraction step expressed in seconds	sec	10	10	10	1		120
53	Duration of the acceleration phase in the 10. extraction step expressed in seconds	sec	40	40	40	1		120
54	Duration of the holding phase in the 1. extraction step expressed in seconds	sec	10	10	10	0		120
55	Duration of the holding phase in the 2. extraction step expressed in seconds	sec	10	10	3	0		120
56	Duration of the holding phase in the 3. extraction step expressed in seconds	sec	5	5	15	0		120
57	Duration of the holding phase in the 4. extraction step expressed in seconds	sec	5	5	0	0		120
58	Duration of the holding phase in the 5. extraction step expressed in seconds	sec	0	0	0	0		120
59	Duration of the holding phase in the 6. extraction step expressed in seconds	sec	10	10	10	0		120

No	Parameter Description	Unit	Factory Default			Min Value		Max Value
			MWS25	MWS35	MWS45			
60	Duration of the holding phase in the 7. extraction step expressed in seconds	sec	0	0	0	0		120
61	Duration of the holding phase in the 8. extraction step expressed in seconds	sec	0	0	0	0		120
62	Duration of the holding phase in the 9. extraction step expressed in seconds	sec	0	0	0	0		120
63	Duration of the holding phase in the 10. extraction step expressed in seconds	sec	0	0	0	0		120
64	Maximum rotation speed of the drum in the extraction main phase expressed in rpm **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	rpm	1000	1000	1000	**A**	300	1000
						B	300	1000
						C	300	1000
65	Rotation mode of the drum in all extraction steps 0: Drum rotates unidirectional 1: Drum rotates bidirectional		1	1	1	0		1
66	Water intake tolerance for the level sensor expressed in cm (inch)	cm	1	1	1	0		10
		in	0,39	0,39	0,39	0		3,93
67	Maximum extraction duration after the last extraction ramp expressed in minutes	min	5	5	7	1		7
68	Drum stop duration in the tilting phase expressed in seconds	sec	3	3	1	1		120
69	Last extraction ramp number corresponding to low speed extraction		4	4	4	3		4
70	Extraction ramp number corresponding to medium speed extraction		5	5	5	4		5
71	Last extraction ramp number corresponding to high speed extraction		10	10	10	5		10
72	Drain duration expressed in seconds The drain fail alarm will be raised if the drain process does not finish within this duration.	sec	60	60	60	40		120
73	Analog output control mode of the AC Drive This parameter becomes active when the 32. parameter is set to "0". 0: AC Drive is controlled by (start) and (direction) outputs 1: AC Drive is controlled by (right) and (left) outputs		1	1	1	0		1
74	Maximum washing duration per program phase used in program editing expressed in minutes	min	30	30	30	1		60
75	Drum rotation duration expressed in seconds	sec	15	15	15	4		30
76	Drum stop duration expressed in seconds **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	sec	5	5	5	**A**	4	90
						B	4	90
						C	5	90
77	Rotation speed of the drum in the washing phase expressed in rpm x 10 The value should be entered as 10 times of the target value. For example for 42 rpm the value should be 420. **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	rpm x 10	430	430	430	**A**	200	430
						B	200	430
						C	250	430
78	Water intake tolerance for the flowmeter used in program editing expressed in liters (gallons)	l	1	1	1	0		100
		gal	0,26	0,26	0,26	0		26,41
79	Changes the preset rotation speed at the washing phase expressed in %. The value should be entered as 10 times of the targeted ratio value added to or extracted from 500 based on the direction of the change. For example for a 22.5% increase the value should be 500 + 225 = 725, for a 22.5% decrease the value should be 500 - 225 = 275 *The factory values may change according to the AC Drive model and the motor type. The values listed here are for the Yaskawa AC Drives and for the standard motors of each separate model. These values can only be edited by the manufacturer and they are being updated to the AC Drive during software updates. The values are only listed as reference information.*	% x 10	440	460	520	0		1000
80	Reserved parameter		5	5	5	1		5
81	Opening delay time for loading door after extraction phase expressed in seconds The operator can't open the loading door until this time passes. **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	sec	110	110	110	**A**	110	300
						B	110	300
						C	110	300
82	Waiting duration required before raising the "Water Intake Time Out" alarm event expressed in minutes The time out alarm will be raised if the water intake process does not finish within this duration.	min	10	10	10	2		20
83	Tolerance temperature value required to raise the tolerance alarm expressed in °C (°F) If the target temperature exceeds the amount of tolerance value then the tolerance alarm is raised.	°C	0	0	0	0		20
		°F	32	32	32	32		68
84	Delay duration to start the heater after its closure expressed in seconds It's used to protect the heater relay.	sec	4	4	4	4		30
85	Extraction step number to open the drain valve during the main extraction phase		3	3	3	1		3
86	Cooling fan shut off delay duration after program completion expressed in minutes The fan will stop when this time passes.	min	5	5	5	1		20

No	Parameter Description	Unit	Factory Default			Min Value	Max Value
			MWS25	MWS35	MWS45		
87	Assigns the selected program number to the 1. memory key.		1	1	1	1	100
88	Assigns the selected program number to the 2. memory key.		2	2	2	1	100
89	Assigns the selected program number to the 3. memory key.		3	3	3	1	100
90	Assigns the selected program number to the 4. memory key.		4	4	4	1	100
91	Assigns the selected program number to the 5. memory key.		16	16	16	1	100
92	Water target level verification duration expressed in seconds When the target level is reached the water level is checked throughout this duration. If the level goes down during this time the water valve is opened again.	sec	3	3	3	3	60
93	Contact type of the vibration switch 0: NO (Normally Open) 1: NC (Normally Closed)		1	1	1	0	1
94	Vibration count in the extraction phase required to raise the linen loading alarm.		15	15	15	1	15
95	Offset value used in water level measurement expressed in an absolute value of "5" which is the equivalent of the measured water level. To increase the displayed value up to 5 cm (2 inch) the offset value should be entered as "10" (5+5=10 as cm) (2+2=4 as inch) To decrease the displayed value up to 5 cm (2 inch) the offset value should be entered as "0" (5-5=0 as cm) (2-2=0 as inch)		5	5	5	0	10
96	Offset value used in temperature display expressed in an absolute value of "15" which is the equivalent of the measured temperature. To increase the displayed value up to 15 °C (27 °F) the offset value should be entered as "30" (15+15=30 as °C) (27+27=54 as °F) To decrease the displayed value up to 15 °C (27 °F) the offset value should be entered as "0" (15-15=0 as °C) (27-27=0 as °F)		22	22	20	0	40
97	HELMS Protocol Support 0: HELMS protocol not supported 1: HELMS protocol based system		0	0	0	0	1
98	Number of water refills before the water leakage alarm is raised		20	20	20	1	50
99	Maximum allowed water level expressed in cm (inch) The water level alarm will be raised if the water level exceeds this value. **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	cm	43	40	40	**A** 40	43
						B 40	40
						C 40	40
		in	16,93	15,7	15,7	**A** 15,7	16,93
						B 15,7	15,7
						C 15,7	15,7
100	"Heating Time Out" alarm waiting duration required to raise an alarm event expressed in minutes. The "Heating Time Out" alarm will be raised if the heating process does not finish within this duration.	min	25	25	25	0	60
101	Pulse value corresponding to 1 liter (0.264 gallon) The value should be entered as 10 times of the target pulse value. For example for 34 pulses the value should be 340.	pulse x 10	0	0	0	0	1000
102	Status of the tilting unit 0: No tilting unit 1: Pneumatic tilting unit		0	0	0	0	1
103	Status of the coin system 0: No coin system 1: Coin system is enabled		0	0	0	0	1
104	Waiting duration before the tilting switch alarm is raised expressed in seconds The tilting switch alarm will be raised if the tilting switch does not activate in the defined duration.	sec	25	25	25	10	60
105	Waiting duration before the seating switch alarm is raised expressed in seconds The seating switch alarm will be raised if the seating switch does not activate in the defined duration.	sec	25	25	25	10	60
106	Rotation speed of the drum in tilting phase expressed in rpm	rpm	12	12	12	10	22
107	Tolerance value of the target temperature to reactivate the heater expressed in °C (°F) If the temperature is as much below the target temperature as the set tolerance value, the heater will reactivate.	°C	5	5	5	1	10
		°F	41	41	41	33,8	50
108	Status of the laundry scale system 0: No laundry scale system 1: LCA-D laundry scale system		0	0	0	0	1
109	Maximum activation duration of the heater expressed in seconds	sec	0	0	0	0	600
110	Maximum deactivation duration of the heater expressed in seconds	sec	0	0	0	0	600
111	Water flow duration for detergent box G expressed in seconds	sec	30	30	30	0	120
112	Water flow duration for detergent box H expressed in seconds	sec	30	30	30	0	120
113	Maximum duration of extraction corresponding to medium speed extraction expressed in minutes	min	2	2	2	1	3

No	Parameter Description	Unit	Factory Default			Min Value	Max Value
			MWS25	MWS35	MWS45		
114	Enables the drum to be rotated at the seated position via the external switch box when the loading door is open 0: Disabled 1: Enabled		0	0	0	0	1
115	Maximum water level to allow opening of the loading door expressed in cm (inch) The loading door will not open if the water level is over the defined value.	cm	22	22	22	2	22
		in	8,66	8,66	8,66	0,79	8,66
116	AC Drive fault output contact type 0=NO (Normally Open) 1=NC (Normally Closed)		1	1	1	0	1
117	Maximum frequency of the AC drive expressed in Hz **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	Hz	150	150	150	**A** 100	150
						B 100	150
						C 100	150
118	Factory programs editing permission 0: Factory programs can not be edited 1: Factory programs can be edited		0	0	0	0	1
119	Disentangle duration after a vibration error expressed in seconds	sec	20	20	20	0	120
120	Duration of the disentangle program applied after an extraction phase expressed in seconds	sec	0	0	0	0	250
121	Status of the emergency stop relay 0: Emergency stop relay is disabled 1: Emergency stop relay is enabled		1	1	1	0	1
122	Reserved parameter		0	0	0	0	1
123	Status of the loading door lock type 1: Electric Door Lock with Knob 2: Electric Door Lock for WE60 & WE110 3: Motorized Door Lock		3	3	3	1	3
124	On duration of the drain valve during the cooldown drain subphase expressed in seconds	sec	1	1	1	1	10
125	On duration of the water valve during the cooldown drain subphase expressed in seconds	sec	3	3	3	1	15
126	Drum rotation duration during the cooldown drain subphase expressed in seconds	sec	30	30	30	0	120
127	Target temperature during the cooldown drain subphase expressed in °C (°F)	°C	45	45	45	40	80
		°F	113	113	113	104	176
128	Flushing duration for detergent boxes C and D expressed in seconds	sec	20	20	20	0	300
129	Measurement method of the detergent system 0: (sec) 1: (ml/kg)		0	0	0	0	1
130	Laundry weight entry method 0: Weight entry is not requested 1: Weight entry is requested		0	0	0	0	1
131	Customize the drum rotation duration, drum stop duration and drum rotation period values during program editing. 0: Use system parameters 1: Customize per program		0	0	0	0	1
132	Delay duration of the extraction phase expressed in seconds	sec	5	5	5	5	20
133	Duration of the drum swinging rotation expressed in multiplier factors Each multiplier factor takes 500 ms.		2	2	2	0	3
134	Duration of the pause between drum swinging rotation inversions expressed in multiplier factors Each multiplier factor takes 500 ms.		0	0	0	0	1
135	Contact type of the drain to duct valve 0: NC (Normally Closed) 1: NO (Normally Open)		1	1	1	0	1
136	Seating valve off delay duration expressed in seconds The seating output will stay on during the defined duration to allow all of the air to vent from the air cushion when the seated position limit switch is activated.	sec	30	30	30	0	120
137	Operation status of the heater in water intake phase 0: Heater does not operate 1: Heater does operate		1	1	1	0	1
138	Ratio for the target temperature to start the washing phase while heating The washing phase will start when the temperature reaches the proportional value of the set value.	%	90	90	90	50	100
139	Ratio for the target duration to start the washing phase while heating The washing phase will start when the duration reaches the proportional value of the set value.	%	100	100	100	70	100

No	Parameter Description	Unit	Factory Default			Min Value		Max Value
			MWS25	MWS35	MWS45			
140	Operation reference of the drain phase 0: The drain process is completed time based 1: The drain process is completed when the water level reaches the defined value (prm.168) expressed in cm (inch) and after the defined delay duration (prm.72)		1	1	1	0		1
141	The "ON" duration of the drain valve during the washing phases until the water in the drum reaches the bottom level expressed in seconds This parameter will become active when the drain operation reference parameter (prm.140) is set to "level".		25	25	25	0		60
142	The "ON" duration of the drain valve during the rinsing phases until the water in the drum reaches the bottom level expressed in seconds This parameter will become active when the drain operation reference parameter (prm.140) is set to "level".		25	25	25	0		60
143	Operation status of the drum during the water intake phase 0: Drum does not operate during water intake 1: Drum does operate during water intake		1	1	1	0		1
144	This parameter defines the working type of the Detergent boxes F/G 0: They function independently from the other boxes as Detergent boxes F/G 1: They activate simultaneously with other detergent boxes Detergent F for WE10, WE15, WE18, WE20, WE24, WE28 Detergent G for WE40, WE60, WE110		0	0	0	0		1
145	Maximum water flow duration of the detergent box expressed in seconds	sec	60	60	60	60		120
146	Status of the balance reader 0: Balance Reader is not active 1: Balance Reader is active		1	1	1	0		1
147	Balance value of 1. extraction step expressed in g **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	g	50	44	50	**A** **B** **C**	15 15 15	50 44 66
148	Balance value of 2. extraction step expressed in g **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	g	50	44	50	**A** **B** **C**	15 15 15	50 44 66
149	Balance value of 3. extraction step expressed in g **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	g	90	60	90	**A** **B** **C**	15 15 15	332 332 90
150	Balance value of 4. extraction step expressed in g **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	g	335	80	335	**A** **B** **C**	15 15 15	440 440 335
151	Balance value of 5. extraction step expressed in g **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	g	530	440	530	**A** **B** **C**	15 15 15	673 673 540
152	Balance value of 6. extraction step expressed in g **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	g	760	729	760	**A** **B** **C**	15 15 15	760 729 760
153	Balance value of 7. extraction step expressed in g **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	g	860	850	860	**A** **B** **C**	15 15 15	860 850 880
154	Balance value of 8. extraction step expressed in g **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	g	970	920	970	**A** **B** **C**	15 15 15	970 920 990
155	Balance value of 9. extraction step expressed in g **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	g	1100	1140	1100	**A** **B** **C**	15 15 15	1100 1140 1100
156	Balance value of 10. extraction step expressed in g **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	g	1710	1710	1710	**A** **B** **C**	15 15 15	1710 1710 1710
157	Maximum rotation speed of the drum during drainage expressed in rpm	rpm	47	47	41	25		50

No	Parameter Description	Unit	Factory Default			Min Value	Max Value
			MWS25	MWS35	MWS45		
158	Contact type of the drain to recycle valve 0: NC (Normally Closed) 1: NO (Normally Open)		0	0	0	0	1
159	Off delay duration of the motorized door lock expressed in miliseconds	ms	450	450	450	0	2000
160	Currency of the coin system 0: $ 1: TL 2: € 3: £		0	0	0	0	1
161	Big coin price of the coin system The value should be entered as 100 times of the target coin price. For example for 0.25$, the value should be entered as "25"		0	0	0	0	1
162	Small coin price of the coin system The value should be entered as 100 times of the target coin price. For example for 0.25$, the value should be entered as "25"		0	0	0	0	1
163	Sequential Program Execution Support 0: Disabled 1: Enabled		0	0	0	0	1
164	Model of detergent unit 0: Cup Type 1: Drawer Type		1	1	1	0	1
165	Rotation speed of the drum when the machine is seated expressed in rpm	rpm	50	50	50	10	70
166	Wet Cleaning Support 0: Disabled 1: Enabled		0	0	0	0	1
167	Water flow duration for detergent box I expressed in seconds	sec	30	30	30	0	120
168	Water level for drain fail alarm expressed in cm (inch) **A:** WE10 Minimum Value / Maximum Value **B:** WE15 Minimum Value / Maximum Value **C:** WE18 Minimum Value / Maximum Value	cm	10	10	10	**A** 8	12
						B 8	12
						C 8	12
		in	3,93	3,93	3,93	**A** 3,15	4,72
						B 3,15	4,72
						C 3,15	4,72
169	Motor Brake Support 0: Disabled 1: Enabled		1	1	1	0	1
170	Count of vibration errors before retaking water to retry extraction		7	7	7	0	7

Table 2.1 Parameters of the MWS25/MWS35/MWS45 Models

2.1.2. Appendix 1.B : Parameters of the MWS55/MWS65/MWS85 Models

No	Parameter Description	Unit	Factory Default			Min Value		Max Value
			MWS55	MWS65	MWS85			
1	Machine model **Important !:** This parameter value shouldn't be changed 0: WE10, 1: WE15, 2: WE18, 4: WE24, 5: WE28 6:WE40 7:WE60 8: WE110		4	5	6	0		8
2	Interface language selection 0:English, 1:Turkish, 2:Italian, 3:Turkmen, 4:Russian, 5:Romanian, 6:Traditional Chinese, 7:Simplified Chinese, 8:French, 9:Croatian, 10:Dutch, 11:German, 12:Polish, 13:Spanish 14:Portuguese, 15:Swedish		0	0	0	0		15
3	Right/left rotation duration of the drum during tilting phase expressed in seconds	sec	5	5	5	0		300
4	Automatic logout duration of the logged in user expressed in minutes	min	20	20	20	2		60
5	Tolerance value of the level to start the water refill process expressed in cm (inch) **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	cm	3	3	5	**A**	3	15
						B	3	15
						C	3	15
		in	1,18	1,18	1,97	**A**	1,18	5,90
						B	1,18	5,90
						C	1,18	5,90
6	Tolerance value of the level to start the water refill process expressed liter (gallon) **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	l	15	15	20	**A**	5	30
						B	5	30
						C	10	40
		gal	3,96	3,96	5,28	**A**	1,32	7,92
						B	1,32	7,92
						C	2,64	10,56
7	Machine measurement unit type 0: Metric Units 1: Imperial Units		0	0	0	0		1
8	Maximum flowmeter value which can be used in water intake subphase during program editing expressed in liter (gallon)	l	0	0	0	0		9999
		gal	0	0	0	0		2641
9	Maximum temperature value which can be used during program editing expressed in °C (°F) **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	°C	90	90	90	**A**	30	90
						B	30	90
						C	30	90
		°F	194	194	194	**A**	86	194
						B	86	194
						C	86	194
10	Maximum available water level which can be used in washing subphase during program editing The levels defined in 10. and 11. parameters are set in the parameters between 13 and 18.		5	5	5	1		5
11	Maximum available water level which can be used in rinsing subphase during program editing The levels defined in 10. and 11. parameters are set in the parameters between 13 and 18.		6	6	6	2		6
12	Minimum water level for the heater to be activated expressed in cm (inch) **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	cm	22	22	30	**A**	22	22
						B	22	22
						C	30	30
		in	8,66	8,66	11,81	**A**	8,66	8,66
						B	8,66	8,66
						C	11,8	11,81
13	Water height in the drum corresponding to the 1. level expressed in cm (inch) These height values shouldn't be changed unless specifically approved by the dealer, the manufacturer, or the detergent supplier. **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	cm	29	30	38	**A**	22	31
						B	22	32
						C	30	39
		in	11,41	11,81	14,96	**A**	8,66	12,2
						B	8,66	12,6
						C	11,8	15,35
14	Water height in the drum corresponding to the 2. level expressed in cm (inch) These height values shouldn't be changed unless specifically approved by the dealer, the manufacturer, or the detergent supplier. **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	cm	31	32	41	**A**	31	33
						B	32	34
						C	39	42
		in	12,2	12,6	16,14	**A**	12,2	12,99
						B	12,6	13,38
						C	15,3	16,53

No	Parameter Description	Unit	Factory Default			Min Value		Max Value
			MWS55	MWS65	MWS85			
15	Water height in the drum corresponding to the 3. level expressed in cm (inch) These height values shouldn't be changed unless specifically approved by the dealer, the manufacturer, or the detergent supplier. **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	cm	33	34	43	**A**	33	34
						B	34	35
						C	42	44
		in	12,99	13,38	16,92	**A**	12,9	13,38
						B	13,3	13,78
						C	16,5	17,32
16	Water height in the drum corresponding to the 4. level expressed in cm (inch) These height values shouldn't be changed unless specifically approved by the dealer, the manufacturer, or the detergent supplier . **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	cm	34	35	45	**A**	34	35
						B	35	36
						C	44	46
		in	13,38	13,78	17,71	**A**	13,3	13,78
						B	13,7	14,17
						C	17,3	18,11
17	Water height in the drum corresponding to the 5. level expressed in cm (inch) These height values shouldn't be changed unless specifically approved by the dealer, the manufacturer, or the detergent supplier. **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	cm	35	36	47	**A**	35	36
						B	36	37
						C	46	48
		in	13,78	14,17	18,50	**A**	13,7	14,17
						B	14,1	14,56
						C	18,1	18,89
18	Water height in the drum corresponding to the 6. level expressed in cm (inch) These height values shouldn't be changed unless specifically approved by the dealer, the manufacturer, or the detergent supplier. **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	cm	36	37	49	**A**	36	37
						B	37	38
						C	48	50
		in	14,17	14,56	18,89	**A**	14,1	14,56
						B	14,5	14,96
						C	19,3	19,68
19	Detergent box quantity For WE40 model this parameter sets just the external unit's detergent box quantity. These models aren't affected by this parameter for the internal detergent boxes.		5	5	6	3		9
20	Water flow duration for detergent box A expressed in seconds	sec	30	30	30	0		120
21	Water flow duration for detergent box B expressed in seconds	sec	30	30	30	0		120
22	Water flow duration for detergent box C expressed in seconds	sec	30	30	30	0		120
23	Water flow duration for detergent box D expressed in seconds	sec	30	30	30	0		120
24	Water flow duration for detergent box E expressed in seconds	sec	30	30	30	0		120
25	Water flow duration for detergent box F expressed in seconds	sec	30	30	30	0		120
26	Status of the external tilting switch box 0: No external switch box 1: External switch box without direction buttons 2: External switch box with direction buttons		0	0	0	0		2
27	Contact type of the motor temperature protection sensor 0: NO (Normally Open) 1: NC (Normally Closed)		1	1	1	0		1
28	Rotation speed of the drum in the disentangle process after extraction expressed in rpm	rpm	12	12	16	10		20
29	Heater type of the machine 0: Electric 1: Steam 2: Dual Heating 3: No heater		0	0	0	0		3
30	Loading Door Open Temperature Value		0	0	0	0		70
31	AC Drive Modbus Slave ID		1	1	1	0		255
32	AC Drive Model (Automatically selected based on the factory configuration)		26	30	39	0		99
33	Rotation speed of the drum during the initial opposite direction turn expressed in "rpm x 10" The value should be entered as 10 times of the target value. For example for 42 rpm the value should be 420. *The factory values may change according to the AC Drive model and the software version. The values listed here are for the Yaskawa AC Drives and for the latest software versions as of the release date of the Operating Manual. These values can only be edited by the manufacturer and they are being updated to the AC Drive during software updates. The values are only listed as reference information.*	rpm x 10	110	110	100	0		1000
34	Rotation speed of the drum in the 1. extraction step expressed in rpm **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	rpm	42	42	36	**A**	0	600
						B	0	600
						C	0	580

No	Parameter Description	Unit	Factory Default			Min Value		Max Value
			MWS55	MWS65	MWS85			
35	Rotation speed of the drum in the 2. extraction step expressed in rpm **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	rpm	90	90	70	**A** **B** **C**	0 0 0	600 600 580
36	Rotation speed of the drum in the 3. extraction step expressed in rpm **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	rpm	140	140	100	**A** **B** **C**	0 0 0	600 600 580
37	Rotation speed of the drum in the 4. extraction step expressed in rpm **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	rpm	250	250	130	**A** **B** **C**	0 0 0	600 600 580
38	Rotation speed of the drum in the 5. extraction step expressed in rpm **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	rpm	350	360	250	**A** **B** **C**	0 0 0	600 600 580
39	Rotation speed of the drum in the 6. extraction step expressed in rpm **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	rpm	450	450	350	**A** **B** **C**	0 0 0	600 600 580
40	Rotation speed of the drum in the 7. extraction step expressed in rpm **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	rpm	500	500	500	**A** **B** **C**	0 0 0	600 600 580
41	Rotation speed of the drum in the 8. extraction step expressed in rpm **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	rpm	550	550	550	**A** **B** **C**	0 0 0	600 600 580
42	Rotation speed of the drum in the 9. extraction step expressed in rpm **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	rpm	600	600	580	**A** **B** **C**	0 0 0	600 600 580
43	Rotation speed of the drum in the 10. extraction step expressed in rpm **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	rpm	960	960	806	**A** **B** **C**	0 0 0	1110 1110 806
44	Duration of the acceleration phase in the 1. extraction step expressed in seconds	sec	2	2	2	1		120
45	Duration of the acceleration phase in the 2. extraction step expressed in seconds	sec	5	5	5	1		120
46	Duration of the acceleration phase in the 3. extraction step expressed in seconds	sec	10	10	10	1		120
47	Duration of the acceleration phase in the 4. extraction step expressed in seconds	sec	8	8	8	1		120
48	Duration of the acceleration phase in the 5. extraction step expressed in seconds	sec	8	8	8	1		120
49	Duration of the acceleration phase in the 6. extraction step expressed in seconds	sec	10	10	10	1		120
50	Duration of the acceleration phase in the 7. extraction step expressed in seconds	sec	10	10	12	1		120
51	Duration of the acceleration phase in the 8. extraction step expressed in seconds	sec	10	10	12	1		120
52	Duration of the acceleration phase in the 9. extraction step expressed in seconds	sec	10	10	15	1		120
53	Duration of the acceleration phase in the 10. extraction step expressed in seconds	sec	40	40	30	1		120
54	Duration of the holding phase in the 1. extraction step expressed in seconds	sec	10	10	10	0		120
55	Duration of the holding phase in the 2. extraction step expressed in seconds	sec	3	3	3	0		120
56	Duration of the holding phase in the 3. extraction step expressed in seconds	sec	10	10	10	0		120
57	Duration of the holding phase in the 4. extraction step expressed in seconds	sec	0	0	0	0		120
58	Duration of the holding phase in the 5. extraction step expressed in seconds	sec	0	0	0	0		120
59	Duration of the holding phase in the 6. extraction step expressed in seconds	sec	10	10	10	0		120
60	Duration of the holding phase in the 7. extraction step expressed in seconds	sec	0	0	0	0		120
61	Duration of the holding phase in the 8. extraction step expressed in seconds	sec	0	0	0	0		120
62	Duration of the holding phase in the 9. extraction step expressed in seconds	sec	0	0	0	0		120
63	Duration of the holding phase in the 10. extraction step expressed in seconds	sec	0	0	0	0		120
64	Maximum rotation speed of the drum in the extraction main phase expressed in rpm **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	rpm	960	960	806	**A** **B** **C**	300 300 300	967 967 806

No	Parameter Description	Unit	Factory Default			Min Value	Max Value
			MWS55	MWS65	MWS85		
65	Rotation mode of the drum in all extraction steps 0: Drum rotates unidirectional 1: Drum rotates bidirectional		1	1	1	0	1
66	Water intake tolerance for the level sensor expressed in cm (inch)	cm	1	1	1	0	10
		in	0,39	0,39	0,39	0	3,93
67	Maximum extraction duration after the last extraction ramp expressed in minutes	min	7	7	5	1	7
68	Drum stop duration in the tilting phase expressed in seconds	sec	3	3	3	1	120
69	Last extraction ramp number corresponding to low speed extraction		4	4	4	3	4
70	Extraction ramp number corresponding to medium speed extraction		5	5	5	4	5
71	Last extraction ramp number corresponding to high speed extraction		10	10	10	5	10
72	Drain duration expressed in seconds The drain fail alarm will be raised if the drain process does not finish within this duration.	sec	60	60	60	40	120
73	Analog output control mode of the AC Drive This parameter becomes active when the 32. parameter is set to "0". 0: AC Drive is controlled by (start) and (direction) outputs 1: AC Drive is controlled by (right) and (left) outputs		1	1	1	0	1
74	Maximum washing duration per program phase used in program editing expressed in minutes	min	30	30	30	1	60
75	Drum rotation duration expressed in seconds	sec	15	15	20	4	30
76	Drum stop duration expressed in seconds **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	sec	5	5	5	**A** 5 **B** 5 **C** 5	90 90 90
77	Rotation speed of the drum in the washing phase expressed in rpm x 10 The value should be entered as 10 times of the target value. For example for 42 rpm the value should be 420. **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	rpm x 10	370	370	350	**A** 250 **B** 250 **C** 250	370 370 370
78	Water intake tolerance for the flowmeter used in program editing expressed in liters (gallons)	l	1	1	2	0	100
		gal	0,26	0,26	0,52	0	26,41
79	Changes the preset rotation speed at the washing phase expressed in %. The value should be entered as 10 times of the targeted ratio value added to or extracted from 500 based on the direction of the change. For example for a 22.5% increase the value should be 500 + 225 = 725, for a 22.5% decrease the value should be 500 - 225 = 275 *The factory values may change according to the AC Drive model and the motor type. The values listed here are for the Yaskawa AC Drives and for the standard motors of each separate model. These values can only be edited by the manufacturer and they are being updated to the AC Drive during software updates. The values are only listed as reference information.*	% x 10	660	660	750	0	1000
80	Reserved parameter		5	5	5	1	5
81	Opening delay time for loading door after extraction phase expressed in seconds The operator can't open the loading door until this time passes. **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	sec	140	140	175	**A** 130 **B** 130 **C** 175	300 300 300
82	Waiting duration required before raising the "Water Intake Time Out" alarm event expressed in minutes The time out alarm will be raised if the water intake process does not finish within this duration.	min	10	10	10	2	20
83	Tolerance temperature value required to raise the tolerance alarm expressed in °C (°F) If the target temperature exceeds the amount of tolerance value then the tolerance alarm is raised.	°C	0	0	0	0	20
		°F	32	32	32	32	68
84	Delay duration to start the heater after its closure expressed in seconds It's used to protect the heater relay.	sec	4	4	4	4	30
85	Extraction step number to open the drain valve during the main extraction phase		3	3	3	1	3
86	Cooling fan shut off delay duration after program completion expressed in minutes The fan will stop when this time passes.	min	5	5	5	1	20
87	Assigns the selected program number to the 1. memory key.		1	1	1	1	100
88	Assigns the selected program number to the 2. memory key.		2	2	2	1	100
89	Assigns the selected program number to the 3. memory key.		3	3	3	1	100
90	Assigns the selected program number to the 4. memory key.		4	4	4	1	100
91	Assigns the selected program number to the 5. memory key.		16	16	16	1	100
92	Water target level verification duration expressed in seconds When the target level is reached the water level is checked throughout this duration. If the level goes down during this time the water valve is opened again.	sec	3	3	3	3	60

No	Parameter Description	Unit	Factory Default			Min Value	Max Value
			MWS55	MWS65	MWS85		
93	Contact type of the vibration switch 0: NO (Normally Open) 1: NC (Normally Closed)		1	1	1	0	1
94	Vibration count in the extraction phase required to raise the linen loading alarm.		15	15	15	1	15
95	Offset value used in water level measurement expressed in an absolute value of "5" which is the equivalent of the measured water level. To increase the displayed value up to 5 cm (2 inch) the offset value should be entered as "10" (5+5=10 as cm) (2+2=4 as inch) To decrease the displayed value up to 5 cm (2 inch) the offset value should be entered as "0" (5-5=0 as cm) (2-2=0 as inch)		5	5	5	0	10
96	Offset value used in temperature display expressed in an absolute value of "15" which is the equivalent of the measured temperature. To increase the displayed value up to 15 °C (27 °F) the offset value should be entered as "30" (15+15=30 as °C) (27+27=54 as °F) To decrease the displayed value up to 15 °C (27 °F) the offset value should be entered as "0" (15-15=0 as °C) (27-27=0 as °F)		20	20	20	0	40
97	HELMS Protocol Support 0: HELMS protocol not supported 1: HELMS protocol based system		0	0	0	0	1
98	Number of water refills before the water leakage alarm is raised		20	20	20	1	50
99	Maximum allowed water level expressed in cm (inch) The water level alarm will be raised if the water level exceeds this value. **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	cm	40	42	52	**A** 40 **B** 42 **C** 52	40 42 52
		in	15,74	16,53	20,47	**A** 15,7 **B** 16,5 **C** 20,4	15,74 16,53 20,47
100	"Heating Time Out" alarm waiting duration required to raise an alarm event expressed in minutes. The "Heating Time Out" alarm will be raised if the heating process does not finish within this duration.	min	25	25	25	0	60
101	Pulse value corresponding to 1 liter (0.264 gallon) The value should be entered as 10 times of the target pulse value. For example for 34 pulses the value should be 340.	pulse x 10	0	0	0	0	1000
102	Status of the tilting unit 0: No tilting unit 1: Pneumatic tilting unit		0	0	0	0	1
103	Status of the coin system 0: No coin system 1: Coin system is enabled		0	0	0	0	1
104	Waiting duration before the tilting switch alarm is raised expressed in seconds The tilting switch alarm will be raised if the tilting switch does not activate in the defined duration.	sec	25	25	25	10	60
105	Waiting duration before the seating switch alarm is raised expressed in seconds The seating switch alarm will be raised if the seating switch does not activate in the defined duration.	sec	25	25	25	10	60
106	Rotation speed of the drum in tilting phase expressed in rpm	rpm	12	12	12	10	22
107	Tolerance value of the target temperature to reactivate the heater expressed in °C (°F) If the temperature is as much below the target temperature as the set tolerance value, the heater will reactivate.	°C	5	5	5	1	10
		°F	41	41	41	33,8	50
108	Status of the laundry scale system 0: No laundry scale system 1: LCA-D laundry scale system		0	0	0	0	1
109	Maximum activation duration of the heater expressed in seconds	sec	0	0	0	0	600
110	Maximum deactivation duration of the heater expressed in seconds	sec	0	0	0	0	600
111	Water flow duration for detergent box G expressed in seconds	sec	30	30	30	0	120
112	Water flow duration for detergent box H expressed in seconds	sec	30	30	30	0	120
113	Maximum duration of extraction corresponding to medium speed extraction expressed in minutes	min	2	2	2	1	3
114	Enables the drum to be rotated at the seated position via the external switch box when the loading door is open 0: Disabled 1: Enabled		0	0	0	0	1

No	Parameter Description	Unit	Factory Default			Min Value		Max Value
			MWS55	MWS65	MWS85			
115	Maximum water level to allow opening of the loading door expressed in cm (inch) The loading door will not open if the water level is over the defined value. **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	cm	22	22	30	**A**	2	22
						B	2	22
						C	2	30
		in	8,66	8,66	11,81	**A**	0,78	8,66
						B	0,78	8,66
						C	0,78	11,81
116	AC Drive fault output contact type 0=NO (Normally Open) 1=NC (Normally Closed)		1	1	1	0		1
117	Maximum frequency of the AC drive expressed in Hz **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	Hz	150	150	128	**A**	100	150
						B	100	150
						C	100	130
118	Factory programs editing permission 0: Factory programs can not be edited 1: Factory programs can be edited		0	0	0	0		1
119	Disentangle duration after a vibration error expressed in seconds	sec	20	20	30	0		120
120	Duration of the disentangle program applied after an extraction phase expressed in seconds	sec	0	0	0	0		250
121	Status of the emergency stop relay 0: Emergency stop relay is disabled 1: Emergency stop relay is enabled		1	1	1	0		1
122	Reserved parameter		0	0	0	0		1
123	Status of the loading door lock type 1: Electric Door Lock with Knob 2: Electric Door Lock for WE60 & WE110 3: Motorized Door Lock		3	3	3	1		3
124	On duration of the drain valve during the cooldown drain subphase expressed in seconds	sec	1	1	1	1		10
125	On duration of the water valve during the cooldown drain subphase expressed in seconds	sec	3	3	3	1		15
126	Drum rotation duration during the cooldown drain subphase expressed in seconds	sec	30	30	30	0		120
127	Target temperature during the cooldown drain subphase expressed in °C (°F)	°C	45	45	45	40		80
		°F	113	113	113	104		176
128	Flushing duration for detergent boxes C and D expressed in seconds	sec	20	20	20	0		300
129	Measurement method of the detergent system 0: (sec) 1: (ml/kg)		0	0	0	0		1
130	Laundry weight entry method 0: Weight entry is not requested 1: Weight entry is requested		0	0	0	0		1
131	Customize the drum rotation duration, drum stop duration and drum rotation period values during program editing. 0: Use system parameters 1: Customize per program		0	0	0	0		1
132	Delay duration of the extraction phase expressed in seconds	sec	5	5	5	5		20
133	Duration of the drum swinging rotation expressed in multiplier factors Each multiplier factor takes 500 ms.		2	2	2	0		3
134	Duration of the pause between drum swinging rotation inversions expressed in multiplier factors Each multiplier factor takes 500 ms.		0	0	0	0		1
135	Contact type of the drain to duct valve 0: NC (Normally Closed) 1: NO (Normally Open)		1	1	1	0		1
136	Seating valve off delay duration expressed in seconds The seating output will stay on during the defined duration to allow all of the air to vent from the air cushion when the seated position limit switch is activated.	sec	30	30	30	0		120
137	Operation status of the heater in water intake phase 0: Heater does not operate 1: Heater does operate		1	1	1	0		1
138	Ratio for the target temperature to start the washing phase while heating The washing phase will start when the temperature reaches the proportional value of the set value.	%	85	85	90	50		100
139	Ratio for the target duration to start the washing phase while heating The washing phase will start when the duration reaches the proportional value of the set value.	%	100	100	100	70		100

No	Parameter Description	Unit	Factory Default			Min Value		Max Value
			MWS55	MWS65	MWS85			
140	Operation reference of the drain phase 0: The drain process is completed time based 1: The drain process is completed when the water level reaches the defined value (prm.168) expressed in cm (inch) and after the defined delay duration (prm.72)		1	1	1	0		1
141	The "ON" duration of the drain valve during the washing phases until the water in the drum reaches the bottom level expressed in seconds This parameter will become active when the drain operation reference parameter (prm.140) is set to "level".		25	25	25	0		60
142	The "ON" duration of the drain valve during the rinsing phases until the water in the drum reaches the bottom level expressed in seconds This parameter will become active when the drain operation reference parameter (prm.140) is set to "level".		25	25	25	0		60
143	Operation status of the drum during the water intake phase 0: Drum does not operate during water intake 1: Drum does operate during water intake		1	1	1	0		1
144	This parameter defines the working type of the Detergent boxes F/G 0: They function independently from the other boxes as Detergent boxes F/G 1: They activate simultaneously with other detergent boxes Detergent F for WE10, WE15, WE18, WE20, WE24i WE28 Detergent G for WE40, WE60, WE110		0	0	0	0		1
145	Maximum water flow duration of the detergent box expressed in seconds	sec	60	60	60	60		120
146	Status of the balance reader 0: Balance Reader is not active 1: Balance Reader is active		1	1	1	0		1
147	Balance value of 1. extraction step expressed in g **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	g	44	44	60	**A** **B** **C**	15 15 15	66 66 66
148	Balance value of 2. extraction step expressed in g **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	g	44	44	60	**A** **B** **C**	15 15 15	66 66 66
149	Balance value of 3. extraction step expressed in g **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	g	70	70	50	**A** **B** **C**	15 15 15	70 70 66
150	Balance value of 4. extraction step expressed in g **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	g	235	250	200	**A** **B** **C**	15 15 15	242 250 220
151	Balance value of 5. extraction step expressed in g **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	g	400	430	400	**A** **B** **C**	15 15 15	540 540 440
152	Balance value of 6. extraction step expressed in g **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	g	660	690	725	**A** **B** **C**	15 15 15	693 693 798
153	Balance value of 7. extraction step expressed in g **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	g	770	820	785	**A** **B** **C**	15 15 15	880 880 864
154	Balance value of 8. extraction step expressed in g **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	g	907	940	850	**A** **B** **C**	15 15 15	990 990 935
155	Balance value of 9. extraction step expressed in g **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	g	1010	1100	950	**A** **B** **C**	15 15 15	1100 1100 1045
156	Balance value of 10. extraction step expressed in g **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	g	1550	1550	1100	**A** **B** **C**	15 15 15	1550 1550 1210
157	Maximum rotation speed of the drum during drainage expressed in rpm	rpm	41	41	39	25		50

No	Parameter Description	Unit	Factory Default			Min Value		Max Value
			MWS55	MWS65	MWS85			
158	Contact type of the drain to recycle valve 0: NC (Normally Closed) 1: NO (Normally Open)		0	0	0	0		1
159	Off delay duration of the motorized door lock expressed in miliseconds	ms	450	450	450	0		2000
160	Currency of the coin system 0: $ 1: TL 2: € 3: £		0	0	0	0		1
161	Big coin price of the coin system The value should be entered as 100 times of the target coin price. For example for 0.25$, the value should be entered as "25"		0	0	0	0		1
162	Small coin price of the coin system The value should be entered as 100 times of the target coin price. For example for 0.25$, the value should be entered as "25"		0	0	0	0		1
163	Sequential Program Execution Support 0: Disabled 1: Enabled		0	0	0	0		1
164	Model of detergent unit 0: Cup Type 1: Drawer Type		0	1	1	0		1
165	Rotation speed of the drum when the machine is seated expressed in rpm	rpm	50	50	50	10		70
166	Wet Cleaning Support 0: Disabled 1: Enabled		0	0	0	0		1
167	Water flow duration for detergent box I expressed in seconds	sec	30	30	30	0		120
168	Water level for drain fail alarm expressed in cm (inch) **A:** WE24 Minimum Value / Maximum Value **B:** WE28 Minimum Value / Maximum Value **C:** WE40 Minimum Value / Maximum Value	cm	13	13	15	**A**	11	15
						B	11	15
						C	9	20
		in	5,12	5,12	5,90	**A**	4,33	5,90
						B	4,33	5,90
						C	3,54	5,90
169	Motor Brake Support 0: Disabled 1: Enabled		1	1	1	0		1
170	Count of vibration errors before retaking water to retry extraction		7	7	7	0		7

Table 2.2 Parameters of the MWS55/MWS65/MWS85 Models

2.2. Appendix 2: I/O Lists

2.2.1. Appendix 2.A : I/O Lists of the Models with Drawer Type Detergent Boxes

DIGITAL OUTPUTS		
No	**Connection**	**Explanation**
1	DO1	Drain to Recycle
2	DO2	Drain to Duct
3	DO3	Steam Valve
4	DO4	3rd Water Inlet Valve
5	DO5	Drum CW/CCW
6	DO6	Drum Run
7	DO7	Door Open
8	DO8	Door Close
9	DO9	Detergent F
10	DO10	Detergent H
11	DO11	Detergent A / HELMS Protocol Data
12	DO12	Detergent B / HELMS Protocol Clock
13	DO13	Detergent C
14	DO14	Detergent D
15	DO15	Detergent E
16	DO16	Heater
17	DO17	Fan Output
18	DO18	Cycle Start/End
19	DO19	Reserved
20	DO20	Siren Output
21	DO21	Detergent G
22	DO22	Cold Water
23	DO23	Hot Water
24	DO24	Reserved

Table 2.3 Digital Outputs of the Models with Drawer Type Detergent Boxes

DIGITAL INPUTS		
No	**Connection**	**Explanation**
1	DI1	Emergency Stop
2	DI2	Reserved
3	DI3	Washing Hold
4	DI4	Detergent Drawer In Position
5	DI5	Motor Protection
6	DI6	Door Switch
7	DI7	Door In Position
8	DI8	AC Drive Fault
9	DI9	Door Lock Switch
10	DI10	Seating Switch
11	DI11	Vibration
12	DI12	Tilting Switch
13	DI13	Tilting
14	DI14	Seating
15	DI15	Turn Right
16	DI16	Turn Left

Table 2.4 Digital Inputs of the Models with Drawer Type Detergent Boxes

ANALOG OUTPUTS		
No	**Connection**	**Explanation**
1	AO-	Drive Reference Negative (-) Terminal
2	AO+	Drive Reference Positive (+) Terminal

Table 2.5 Analog Outputs of the Models with Drawer Type Detergent Boxes

ANALOG INPUTS		
No	**Connection**	**Explanation**
1	SC+	LM35 Positive (+) Terminal
2	AI1+	LM35 Temperature Input
3	AI1-	LM35 Negative (-) Terminal

Table 2.6 Analog Inputs of the Models with Drawer Type Detergent Boxes

COUNTER INPUTS		
No	**Connection**	**Explanation**
1	CNT-1	Water Meter Pulse Input (Positive)
2	CNT-2	Water Meter Pulse Input (Negative)

Table 2.7 Counter Inputs of the Models with Drawer Type Detergent Boxes

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