

PM5 Mobile user manual

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Introduction

PM5 Mobile is a scaled down mobile client for PM5 maintenance scheduling application created by PCSYS A/S. Purpose of our mobile client is to give the user ability to use PM5 on any mobile device with access to Internet, anywhere and at any time.

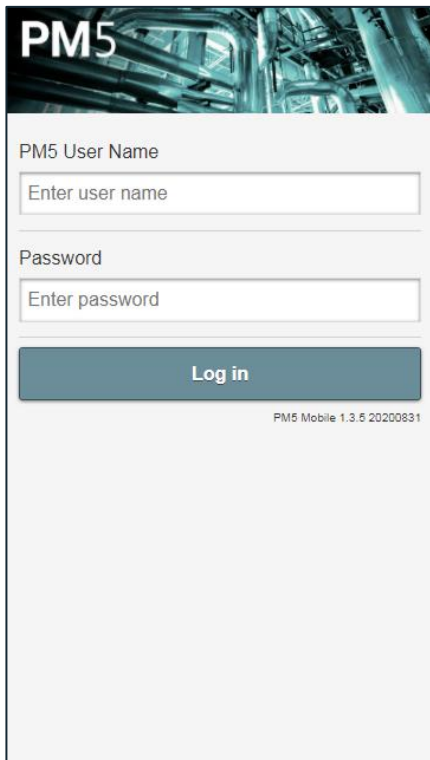
To ensure maximum flexibility of the application, PM5 Mobile is accessed through a standard web browser and works just like any standard web page. For more detailed information about technical aspects and requirements for use of PM5 Mobile as well as installation process, please refer to relevant appendix at the end of this manual.

PM5 Mobile is primarily intended for use on mobile devices. Therefore, both its user interface as well as its set of features is simplified when compared to standard desktop client.

PM5 Mobile - Feature Description

Login and main menu

Login

The image shows the login screen of the PM5 Mobile application. At the top, there is a header with the text 'PM5' and a background image of industrial machinery. Below the header, there are two input fields: 'PM5 User Name' with a placeholder 'Enter user name' and 'Password' with a placeholder 'Enter password'. A 'Log in' button is positioned below the password field. At the bottom right of the screen, the text 'PM5 Mobile 1.3.5 20200831' is visible.

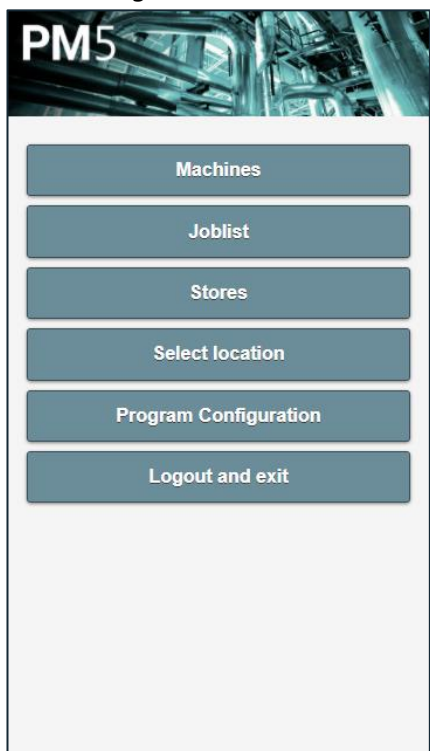
As a first step, user needs log in onto the system. The procedure is exactly the same as when logging in on standard PM5 client - user is to provide PM5 user name and associated password and press 'Log in' button. User credentials are the same for both PM5 and Mobile PM5.

There are a couple of things to keep in mind regarding access to PM5 on mobile devices:

- A login on a mobile device is treated the same way as a login on standard client and does take up one of the simultaneous login slots allowed by the license.
- However, same user can be simultaneously logged in on PM5 on a desktop client **and a single mobile device**. This 'double' login takes up **single** login slot from the number allowed by the license.
- User can be logged in on **one and only one** mobile device at a time. If user logs in on second mobile device, the login session on first device is automatically terminated.

Main menu

Once user is granted access to PM5, main menu of the application is shown on the screen.



There are six buttons in Main Menu of PM5:

Machines - allows management of machines, handling of activities and faults that belong to the machines, reporting of faults and consumption of spare parts in connection with finish of above-mentioned activities/faults.

Joblist - gives access to two types of job lists:

- shortlist of activities and faults that are to be completed by the user that is currently logged in.
- a complete list of all unfinished jobs currently in the system.

From 'Joblist' user can also search for an individual job using job id number as search parameter.

Stores - allows adjustment and replenishment of spare part stocks defined in PM5.

Select location – allows selection of PM5 location, which thereafter is used as a filter for information displayed in the application. Once a location is selected, only location belonging to machines at that location and its child locations will be displayed in machine searches and job lists/searches.

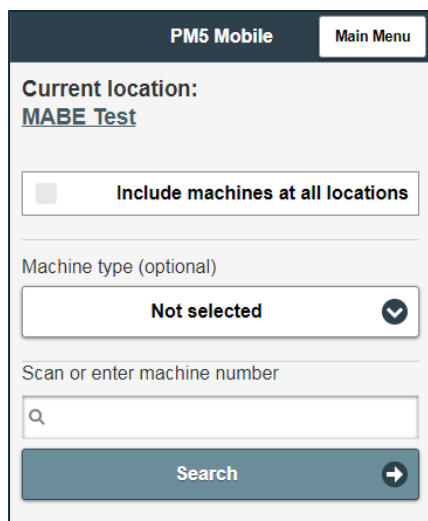
Program Configuration - opens a screen with user's personal application settings.

Logout and Exit - logs the user out of the system and navigates to login screen.

Machine management

Machine search form

Machine management functions of PM5 Mobile are accessed by pressing 'Machines' in main menu of the application.

The screenshot shows the 'PM5 Mobile' application interface. At the top, there's a dark header with 'PM5 Mobile' and a 'Main Menu' button. Below the header, the 'Current location:' is displayed as 'MABE Test'. A checkbox labeled 'Include machines at all locations' is currently unchecked. Underneath, there's a section for 'Machine type (optional)' with a dropdown menu showing 'Not selected'. Below that is a text input field labeled 'Scan or enter machine number' with a magnifying glass icon. At the bottom is a blue 'Search' button with a right-pointing arrow.

First screen in this function is machine search screen.

In Machine Search screen, user can search for the machine he wishes to work with. Value entered by the user is used as search parameter in a search of PM5 database. The search result will include all machines that contain that search parameter in either machine name or machine number.

As of version 1.3.3, there is an upper limit for number of machines allowed to be included in search results. As default, a search can return maximum of **30 machines** in a search result. If a search finds more machines than allowed maximum of records, user will be requested to repeat the search with more specific search criteria.

Maximum number of allowed search returns can be modified by user in PM5 Mobile application settings. If this is required, please contact PCSYS support for further information.

Search result can be further limited to the machines of certain type. This is done by selecting machine type in combo box labeled 'Machine type (optional)'. If value selected in the combo box is 'Not selected', this search parameter will be disregarded.

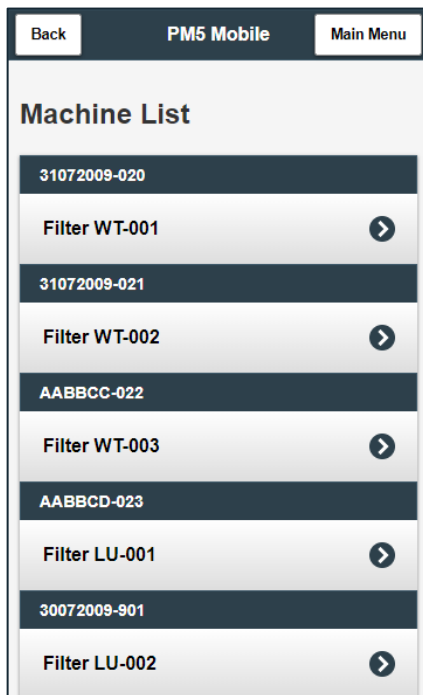
Machine search is automatically limited only to the machines located at currently selected location or one of its child locations. Currently selected location is shown at the top of the page, in the example picture it is 'PM5' (top node of navigation tree). Name of currently selected location works as a shortcut to location selection page – by pressing on it, user navigates to location selection page, where currently selected location can be changed.

Filtering based on currently selected location can be temporarily bypassed by checking in checkbox 'Include machines at all locations'. When this checkbox is checked in, machine search results will include all relevant machines at all locations to which user has access in PM5.

If the search can't find any machines with entered search parameter, user is notified about that fact in a message at the bottom of the page.

If the search finds at least one machine that contains search parameter in its name or machine number, the program navigates to the search result list.

Machine search result form



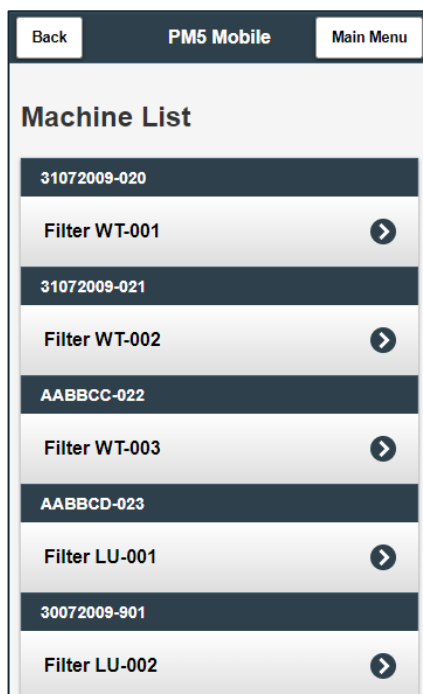
The screenshot shows a mobile application interface for machine search results. At the top, there is a dark blue header bar with three buttons: 'Back', 'PM5 Mobile', and 'Main Menu'. Below the header, the title 'Machine List' is displayed. The main content area contains a list of machine entries. Each entry consists of a dark blue bar with a machine number and a light gray bar with a filter name and a right-pointing arrow. The entries are: 31072009-020 (Filter WT-001), 31072009-021 (Filter WT-002), AABBC-022 (Filter WT-003), AABBCD-023 (Filter LU-001), 30072009-901 (Filter LU-002).

Machine search result page presents the list containing all machines that were found in the search. Machine list shows machine number and name. To select specific machine, user is to tap on its name.

'Back' button returns the user to machine search form. Once there, user can perform another machine search.

'Main Menu' button returns the user back to main menu.

Machine form



The screenshot shows a mobile application interface for a machine form. At the top, there is a dark blue header bar with three buttons: 'Back', 'PM5 Mobile', and 'Main Menu'. Below the header, the title 'Machine List' is displayed. The main content area contains a list of machine entries. Each entry consists of a dark blue bar with a machine number and a light gray bar with a filter name and a right-pointing arrow. The entries are: 31072009-020 (Filter WT-001), 31072009-021 (Filter WT-002), AABBC-022 (Filter WT-003), AABBCD-023 (Filter LU-001), 30072009-901 (Filter LU-002).

Machine screen consists of several sections, depending on data in PM5 database. Info section is always shown at the top of Machine screen. Optional elements Activity List, Fault List, Associated spare parts and Job History are only shown if there is relevant data, so for example if the machine has no unresolved faults, the Fault list will not be presented on the screen.

To see the content of individual sections, user is to tap on the relevant bar.

At the bottom of the form there are buttons 'Search' and 'New Fault'.

By clicking on 'Search' button, user will navigate back to Machine Search screen.

By clicking on 'New Fault' button, user initializes rapport of new fault for currently selected machine.

'Main Menu' button returns the user back to Main Menu screen.

Info section

Info section provides detail information about currently selected machine. It shows:

The screenshot shows a mobile application interface for 'PM5 Mobile'. At the top, there are buttons for 'Back', 'PM5 Mobile', and 'Main Menu'. Below this is a header 'Filter WT-001'. A section titled 'Info' with a minus icon contains a table with the following data:

Location:	Alpha
Machine number:	31072009-020
ID code:	020
Type:	Filter

Below the table are four expandable sections: 'Activity list', 'Fault list', 'Associated spareparts', and 'Job history', each with a plus icon. At the bottom are 'Search' and 'New Fault' buttons.

- machine's position in PM5 location structure.
- machine number.
- machine's ID code.
- machine's type.

Activity list

The screenshot shows the same mobile application interface, but the 'Activity list' section is expanded. It shows two entries:

- 2020-06-19 - TASK BATCH TE... >
- 2020-06-22 - TASK BATCH TE... >

The other sections ('Info', 'Fault list', 'Associated spareparts', 'Job history') are collapsed. The 'Search' and 'New Fault' buttons remain at the bottom.

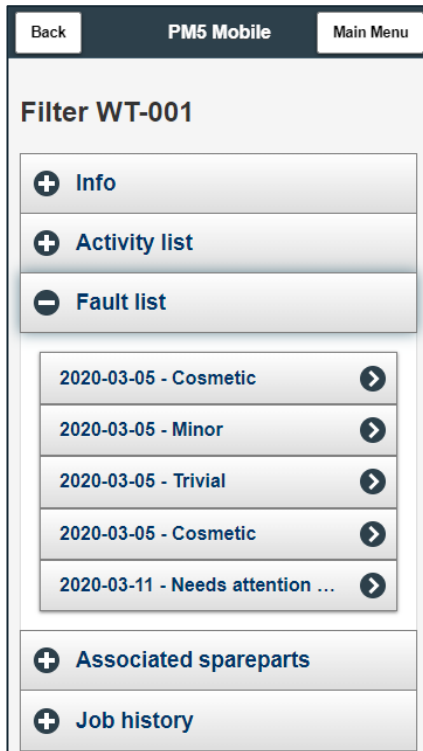
Activity list section shows all **unfinished** activities associated with the machine. Every position in the list shows scheduled date and name of the task to which the activity belongs.

The list is sorted on scheduled date, in descending order.

By tapping one of the bars in the activity list, user will navigate to Activity Detail screen for that activity.

If machine has no unfinished activities scheduled in PM5, Activity list bar will not be shown.

Fault list



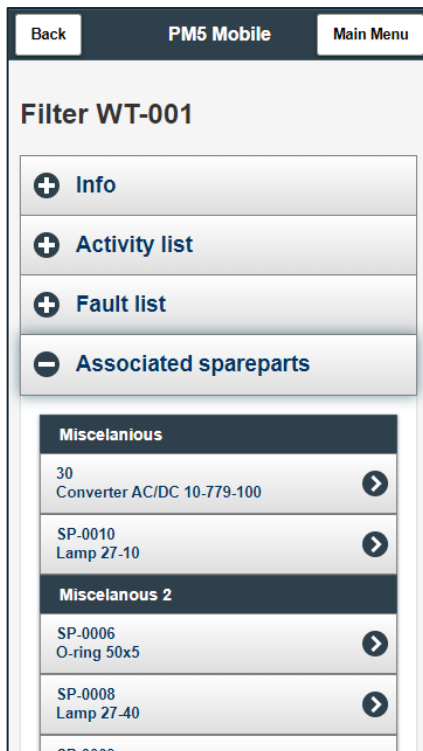
Fault list section shows all **unfinished** faults reported for currently selected machine. Every position in the list shows date on which the fault was reported and fault type.

The list is sorted on fault report date, in descending order.

By tapping one of the bars in the fault list, user will navigate to Fault Detail screen for that fault.

If machine has no unfinished faults reported in PM5, Fault list bar will not be shown.

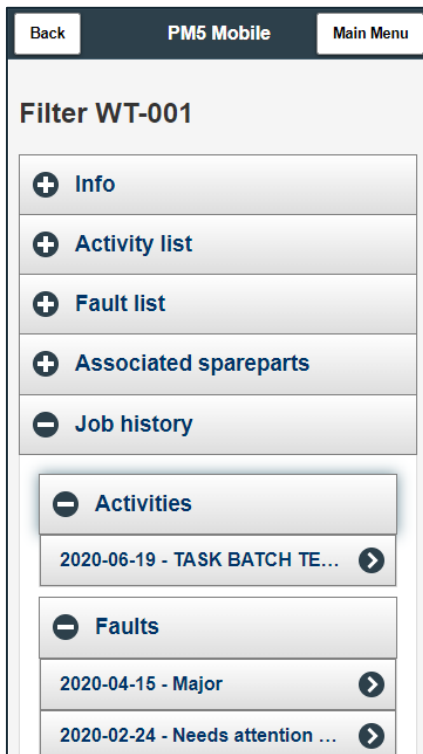
Associated spare parts



Associated spare parts section lists all spare parts associated with currently selected machine. The list is grouped by spare part type and listed alphabetically on spare part number.

If machine has no associated spare parts, the Associated spare parts bar will not be shown.

Job history



Job history section consists of two lists, one each for activities and faults.

Activity list shows up to five of the latest finished activities, based on activities scheduled date.

Fault list shows up to five of latest finished faults, based on fault report date.

By tapping on one of the jobs listed in the two lists, user will navigate to page presenting detailed information about the selected job.

If machine has no finished activities, the Activities list will not be shown in Job History section.

If machine has no finished faults, the Faults list will not be shown in Job History section.

If the machine has no finished jobs at all, then Job History tab will not be shown on the screen.

Buttons 'Search' and 'New Fault'

'Search' button at the bottom of Machine Details form is a shortcut leading back to Machine Search screen.

'New Fault' allows user to report new fault for currently selected machine.

Reporting new fault for a machine

Report Fault

Machine name: Valve A-001

Machine number: 30072009-001

Fault type
Cosmetic

Priority code
Not selected

To be signed by
pm5 pm5

Fault description

☐ Started

Cancel Save

By pressing 'New Fault' button at the bottom of Machine Details page, user navigates to Report Fault screen. Here user can report a fault for currently selected machine.

To be able to report a fault, user needs to select fault type and who's responsible for handling of that fault. This is done by tapping 'Fault type' and 'To be signed by' combo boxes and making appropriate selections.

When a machine is of a machine type that has fault description/fault cause group assigned to itself, the initial list of fault types will be reduced to those specified in the group. To gain access to all fault types specified in PM5, press on 'Show all' button above the fault type combo box.

User can also enter a fault description of the fault that is being reported. This is done by tapping on 'Fault description' field. On mobile devices, this action will bring up a virtual keyboard on the screen, allowing the user to type the necessary information.

☐ Started

As of version 1.2 user can also report new fault with 'Started' status, thereby indicating that the work on the fault has already been initiated. To do that, user needs to check in the 'Started' checkbox before

committing the fault to the system.

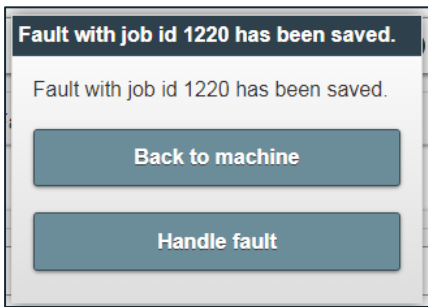
Not selected

August 2020

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Set Date

Next, user needs to select the expected end date. This is done by pressing on calendar icon on the right side of "Expected end date" field. This action will bring up a date picker in which user can select the date for when the job is expected to be finished. The selected date is committed by pressing 'Set Date' button at the bottom of date picker.

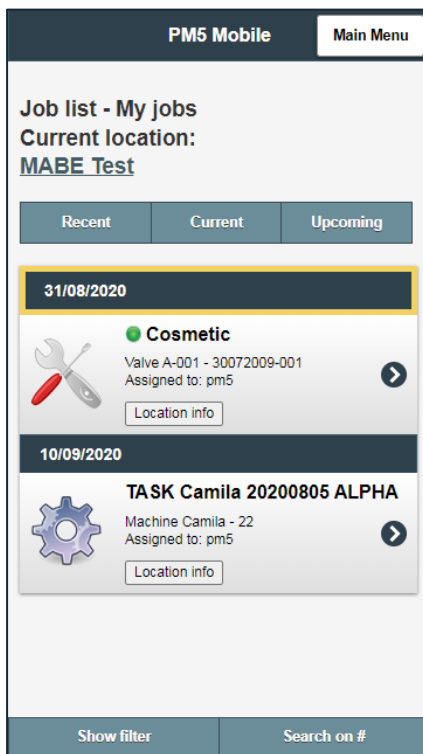


When ready with the steps above, user saves new fault report by pressing the 'Save' button. When new fault is saved, a confirmation with job number of new fault is shown on the screen.

Button 'Back to machine' will navigate to machine information page.

Button 'Handle fault' will navigate to fault information page, containing information about the newly created fault. Once there, user can handle and finish the fault.

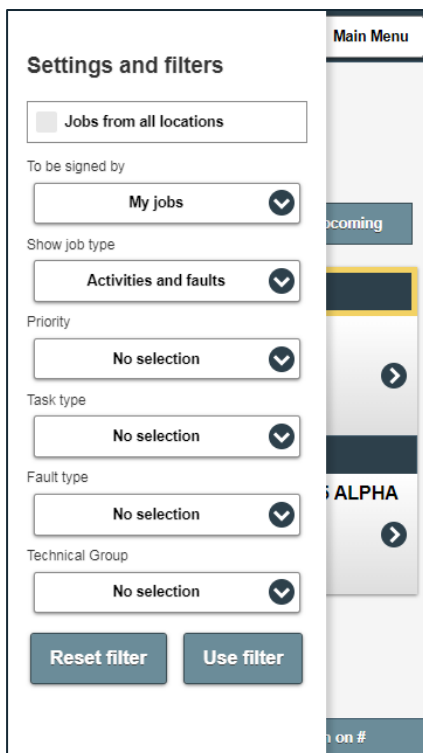
Job List



By pressing on 'Job List' button in Main Menu, user accesses a list of unfinished jobs in PM5 system. Which jobs are included in the list is dependent on following factors:

- Only unfinished jobs are included in the list.
- Only jobs belonging to the machines at locations accessible by user through his membership in PM5 User Groups are included in the list.
- Only jobs belonging to the machines located at currently selected location or child locations of selected locations are included in the list.
- Only jobs that are scheduled within currently selected time space (Recent, Current and Upcoming) are included in the list.
- Job list generated according to the rules above can be further filtered based on the job list filter, accessible by pressing 'Show filter' button. After login onto PM5 Mobile, the job filter is always set to show only the jobs assigned to the logged in user.

Job list filter



Job list filter is accessed by pressing 'Show filter' button.

User can reduce the job list based on following filter parameters:

- Jobs from all locations – by checking in this checkbox, user can override the current location selection and bring up a job list for all locations accessible to him in PM5. Please observe that this list can still be reduced based on other filter parameters as well as what time period is selected in main job list screen.
- To be signed by – this filter parameter allows user to reduce the job list to those assigned to a specific PM5 user.

By default, this filter parameter is always set to the currently logged in user, thus presenting personal job list.

User can disable this filter parameter completely by selecting 'All' (second position in the combo box). When 'All' is selected, then a complete job list for all users is presented on the screen.

Please observe that the list of PM5 users in this filter **does not** include all PM5 users. Instead, only those PM5 users who actually have unfinished jobs at locations accessible to currently logged in user are included in this filter. This is done for sake of convenience in an attempt to reduce the list only to relevant choices.

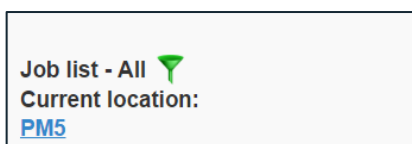
- Show job type – this filter parameter allows the user to reduce the list to specific job type – either activities or faults. By default, this filter parameter is set to 'Activities and faults' – the job includes then both activities and faults.

- Task type – this filter parameter allows the user to filter activities shown in the list according to a specific task type.
- Fault type – this filter parameter allows the user to filter faults shown in the list according to specific fault type.
- Technical Group – this filter parameter allows the user to reduce the job list to the jobs that are assigned to a specific technical group.

The filter is enforced as soon as its panel is closed. This can be done by either pressing on 'Exit filter' button or by tapping once on main job list screen.

By pressing on 'Reset filter' button, user resets the filter to default settings – checkbox 'Jobs from all locations' is unchecked, 'To be signed by' is set to the logged in user, the list is set to show both faults and activities. The remaining filter parameters are set to 'No selection'.

Job list information



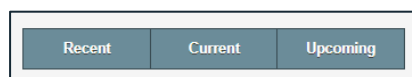
Job list information is always shown on the top of the job list page.

First line in job list shows to whom the job list belongs, according to selection in the job list filter.

When filter settings are other than default, the filter is considered to be active. This is indicated with a green funnel icon shown beside the information about currently selected location.

The second line in job list information shows what location is currently selected. The location path works also as a quick link to location selection page, if user needs to change it (and thereby possibly change the content of the job list).

Recent, Current and Upcoming



For the sake of convenience, the list is split in three sections – each section spans over a specific time period, measured in days. The number of days is defined in 'Program Configuration' section, accessible through

the Main Menu of PM5 Mobile.

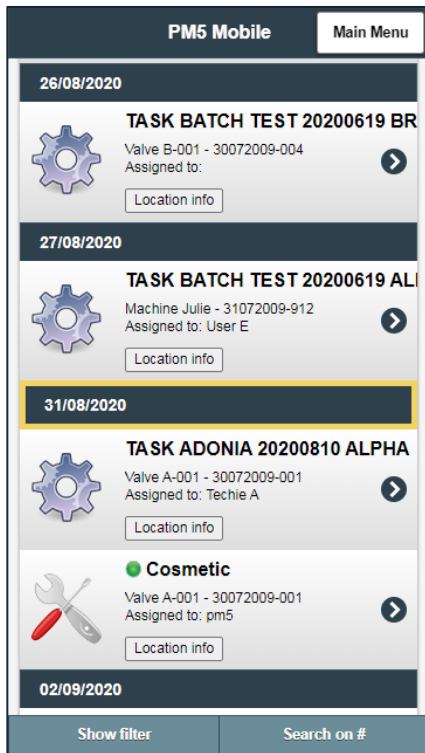
'Recent' section shows unfinished activities scheduled for a date earlier than current date and faults with discovery date that is earlier than current date. In other words, the 'Recent' section lists jobs that are late.

'Current' section shows jobs scheduled both for the past and future dates, based on how many days back and forth it is to span, according to personal preferences set in 'Program Configuration'.

'Upcoming' lists show unfinished activities scheduled for current date or later as well as faults with discovery date being current date or later.

Selection of job list section is done by pressing on corresponding button at the top of the personal list.

Activities and faults in Job List



In personal job list, job lists in all sections are grouped and sorted by scheduled date for activities and discovery date for faults.

Today's date is marked with yellow frame. If there are no jobs in the list for current date, the jobs that were scheduled for the past and those assigned for future dates are separated by a yellow band.

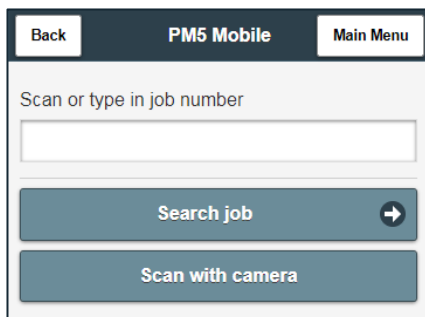
Jobs with same name are sorted on PM5 job number. Type of job is indicated by the icon shown to the left of job information - spokes wheel indicates an activity, crossed screwdriver and french tool indicate a fault.

Each job list element shows the name and number of machine to which the job belongs, as well as which user is assigned to the job.

Jobs that are started, but not finished are indicated with green circle icon to the left of the task name/fault type.

By tapping on a job element in the list, user navigates to detail screen for that job.

Search on



As an alternative to selecting a job from the job list, user can select a specific job by specifying its job id number. To do this, user needs first to press 'Search on #' button at the bottom of the job list screen. The application will then navigate to a page where user can enter the job id of the job he wishes to access.

Provided that the entered job is valid, belongs to a job that is unfinished and belongs to a machine that is located at a location which user is allowed to access through his one of his user groups, the application navigates to the job page once the 'Search job' button has

been pushed.

Time periods in Job List

At first, it may seem strange that there are two job lists with exactly same content in Job list - both 'Current' and 'Upcoming' lists show future jobs scheduled for currently logged in user. However, this has been a conscious decision; the difference between 'Current' and 'Upcoming' lists is that user can decide the time span covered by each of those list sections. Thus, 'Current' list could show jobs for next three days or even just for current day, while 'Upcoming' section can be used for an overview of upcoming jobs over longer time period.

Of course, user has similar control over the 'Recent' section and can decide how many days his 'delayed' list is to include.

Time span of each time period in personal list is controlled in Program Configuration, accessible through Main Menu. For more information about Program Configuration, please refer to chapter covering that functionality.

Management of jobs in PM5 Mobile

Individual unfinished jobs can be accessed in PM5 Mobile in two ways:

- Select a machine and then select an unfinished activity/fault from its job lists.
- Select an unfinished job from one of the job lists in Personal List.

Regardless of how the job is accessed, when user selects it, the application switches over to Detail form for that job. This screen presents rudimentary information about the selected job.

Job detail screen

The screenshot shows the 'Fault Details' screen in the PM5 Mobile application. At the top, there are navigation buttons: 'Back', 'PM5 Mobile', and 'Main Menu'. Below the title 'Fault Details', the 'Job ID' is 1220 with a green status indicator, and the 'Machine name' is 'Valve A-001'. A 'Details' section is expanded, showing a table of job information. Below this, there are sections for 'Fault description' and 'Fault solution', both with checkmarks indicating they are completed. At the bottom, there are buttons for 'Spareparts', 'Manhours', and 'Finish fault'.

Details	
Machine number	30072009-001
Location	Alpha
Discovered	2020-08-31
Discovered by	pm5
Priority	Unspecified
Fault type	Cosmetic
Fault cause	Unspecified
Expected finished	2020-08-19
To be signed by	pm5

Fault description ✓

Issue with power supply. Intermittent power failures.

Fault solution ✓

Change PSU unit.

Spareparts Manhours

Finish fault

Job ID and what machine it is to be performed on is always presented on the top.

Other information is presented in Info section, which can be expanded or collapsed by tapping on it. Content of Info section is slightly different for activities and faults.

Job screen provides user interface for input/editing of activity note if the job is an activity.

Job screen provides user interface for input/editing of fault description and fault solution if the job is a fault.

By pressing button 'Handle spareparts', user will navigate to a page where spare part consumption for currently selected job can be edited. User can add new spare part consumptions or handle already existing spare part consumptions.

By pressing button 'Handle manhours', user will navigate to a page where use of manhours can be registered for currently selected job. Please observe that user can register only his own use of manhours.

Back

PM5 Mobile

Main Menu

Activity Details

Job number: 1194

Machine name: Valve B-001

Details

Machine number:	30072009-004
Task:	TASK BATCH TEST 20200619 BRAVO
Location:	Bravo
Task Type:	Weekly Maintenance
Priority:	Unspecified
Scheduled:	2020-08-26
To be signed by:	

Activity note

Remember to lubricate gaskets if change necessary.

Spareparts	Manhours
Mark as started	Finish Activity

When 'Finish fault' alternatively 'Finish activity' button is tapped, the application switches to Finish Job screen, where currently selected job can be finished.

Button 'Mark as started' allows the user to change status of the job to started. User is then requested to specify expected end date for the job.

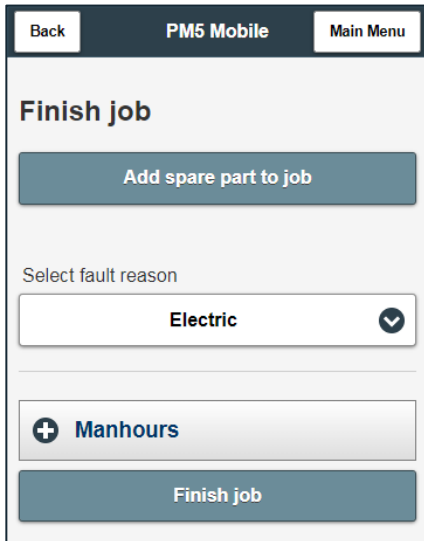
Once the job is started or if user has selected already started job, 'Mark as started' button is not displayed on the screen.

When selected job is already started, this status is indicated by displaying a green globe bedside job id. Fault in example picture on previous page is started – green globe is displayed and 'Mark as started' button is not displayed. Activity in example picture is not started.

Depending on how a job was selected in the first place, tapping on 'Back' button will switch back to either Machine Detail form of currently selected machine **or** Personal Job list.

Button 'Main Menu' will switch back to Main Menu form.

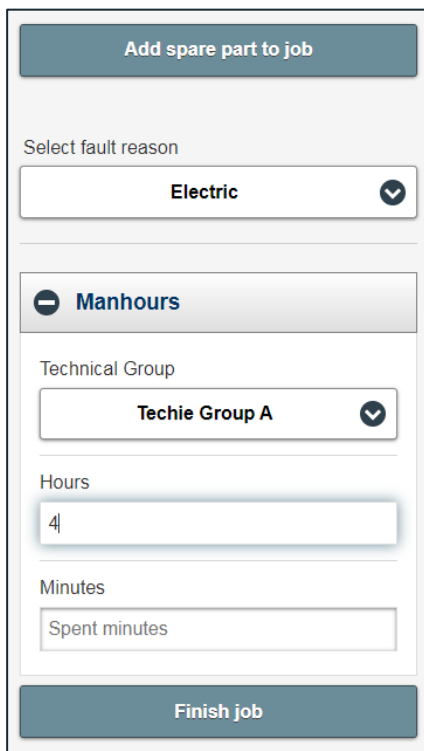
Finishing a job



Finish Job screen is almost identical for both activities and faults. Regardless of the job type, it contains following elements:

- List of spare parts specified to be consumed by the job. If no spare parts are specified, the list is not shown.
- If currently logged in user belongs to a technical group that is allowed to spend man hours on currently selected job, then he/she can specify time expended on the job. Registered time is always registered for current date and is always assigned to currently logged in user. If user does not belong to technical group that qualifies for time consumption on currently selected job, Man Hours section is not shown on the screen.

If the job is a fault, user also needs to specify fault cause before being allowed to register the job as finished.



Once all data has been inserted, user finishes the job by pressing 'Finish Job' button. Successful registration of completion of job is confirmed by the system showing a dialog with confirmation text. After confirmation dialog's 'OK' button has been pressed, program switches to either Machine Detail screen or user's Job List screen, depending on how the job was accessed in the first place.

Measured parameter value

Measured parameter Test A

Max counter value: 9999

Enter current value

Measured parameter value

Last five counter reads

2018-11-20	6000
2018-10-17	3000
2018-09-20	8600
2018-08-14	4500
2018-07-18	1200

When working with activities based on measured parameters, a measured parameter section is displayed on the screen. This section shows information about the measured parameter and values of up to five latest reads entered in PM5 for that parameter.

Most importantly though, user can here enter new measurement read value, which will be saved in PM5 as part of finishing the job. Please observe that the read value will be automatically saved as read of current day; if measured parameter has already been read on that day, user will not be allowed to commit new read value. Entered value must then be erased to be able to finish the activity.

Note for next activity

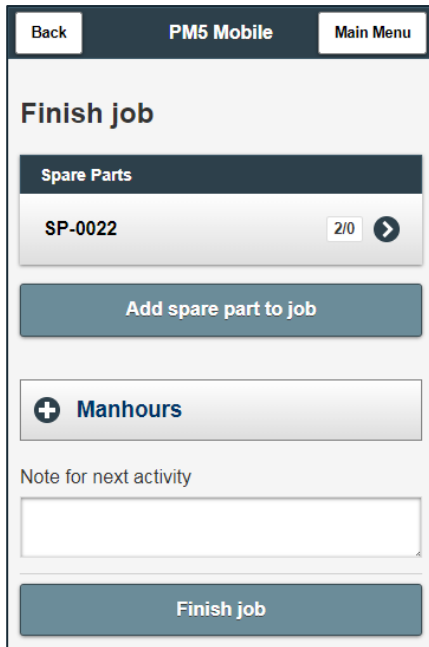
'Note for next activity' is also displayed only if the job about to be finished is an activity. Here user can enter a text which will be saved and displayed in 'Activity note' field of **next activity**.

Spare part consumption in PM5 Mobile

PM5 Mobile handles spare part consumption by jobs in same way as desktop client. It allows the user to management of previously scheduled spare part consumptions as well as creation of new spare part consumptions.

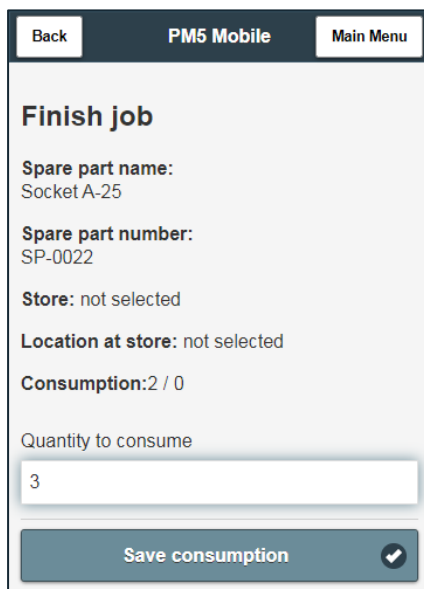
All spare part consumptions registered through PM5 Mobile are automatically registered in PM5:s spare part stock change log.

Management of previously defined spare part consumptions



If a job has one or more beforehand specified spare part consumptions, complete list of those consumptions is shown at the top of that job's Finish Job screen. Record for each consumption consists of spare part name and two values separated by '/'. First value indicates estimated consumption; the second indicates current real consumption.

User can access and modify those records by tapping on the spare part post that is to be edited. When this action is performed, the application shifts to the Consumption Detail screen containing detailed information about selected consumption.

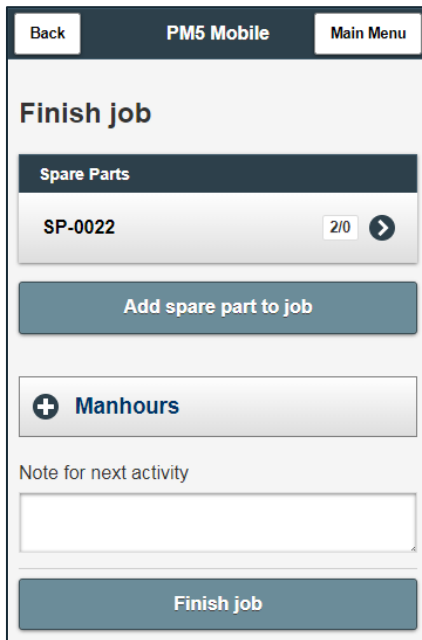


In same form user can also record new consumption of selected spare part. This is done by entering consumption value and pressing on 'Save Consumption' button. This action will register the specified consumption and switch back to Job Screen of currently selected job.

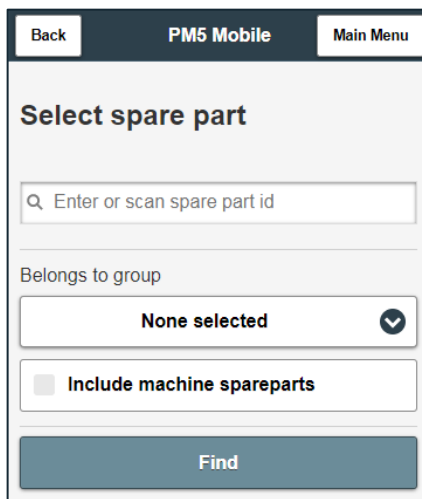
Please observe that:

- Specified consumed quantity is always **added** to existing consumption value. So for example, if previously recorded consumption was 1 and user registers consumption of 2, then the resulting consumption registered in the system will be 3.
- in current version of PM5 Mobile **there is no** automated management of consumption in connection with job completion. User needs to **manually** handle all consumption of spare parts **before** finishing the job.
- if beforehand specified consumption has a specified stock as its source, that stock cannot be changed in PM5 Mobile.

Adding new consumption to a job



Spare part consumptions that are not beforehand defined in PM5 can be created by pressing on button 'Add spare part to job' in Job screen of currently selected job. This action switches to Spare Part Search screen.



In Spare Part Search screen, user can enter search parameter and search for spare parts. Search parameter is applied to following spare parts attributes:

- spare part name
- spare part number
- spare part barcode value

(1)

(2) Search result includes all spare parts where search parameter could be found anywhere in attributes above. For example a search on a single letter 'N' will return all spare parts having at least one 'N' anywhere in their name, id number or barcode value.

As of version 1.3.3, there is an upper limit for number of spare parts allowed to be included in search results. As default, a search can return maximum of **30 spare parts** in a search result. If a search finds more

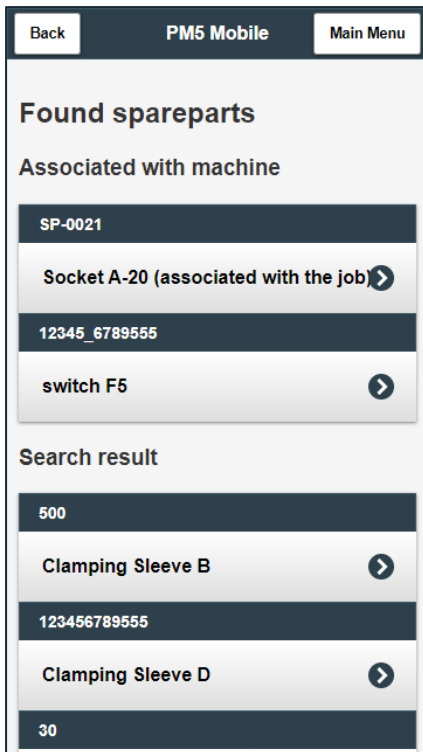
spare parts than allowed maximum of records, user will be requested to repeat the search with more specific search criteria.

Maximum number of allowed search returns can be modified by user in PM5 Mobile application settings. If this is required, please contact PCSYS support for further information.

If there are no spare parts that correspond to search parameter, user is notified about it with a message on the screen.

Combobox 'Belongs to group' can be used to limit search results only to spare parts belonging to the group that is selected.

Checkbox 'Include machine spare parts' can be used to indicate that the search result is to include all spare parts that are associated with the machine. Search result will then consist of two lists. Upper list will list all spare parts associated with the machine. The list below will show spare parts found through the search.



To the left is an example of a search result that includes spare parts associated with the machine. Spare parts that are included in search result are listed in alphanumeric order on spare part number.

Please observe that the spare part listed on the top has "(associated with th job)." tag. This means that this spare part is **already** associated with currently selected job. If user needs to change consumption of this spare part, it needs to be done from within Job screen of the job, since same spare part cannot be associated more than once with a single job.

If user selects spare part tagged with "(associated with the...)", the program will switch back to the Job screen of currently selected job.

User selects the spare part that is to be associated with the job by tapping on its name. The application switches then to the Spare Part Detail screen.



Spare Part Detail screen shows detail information of selected spare part and its stocks that are available to currently selected job. This screen is similar to the screen that is shown for spare parts that are beforehand associated with the selected job. The main difference is that when new consumption is created, user needs to specify its source stock before being able to save it.

In example to the left, the spare part has two stocks that are available for consumption by machine to which current job belongs. Numbers shown in each selection indicate current quantity in store at that stock.

Business logic deciding which stocks are available to individual machines and jobs is identical to that which is used in PM5.

Selection 'Not from stock' is to be used for consumption that doesn't use any stock. This selection is always available for all spare part consumptions.

Back
PM5 Mobile
Main Menu

Add consumption

Spare Part Name
Clamping Sleeve D

Spare Part Number
123456789555

Store: Rotterdam

Location at store: Room 2 / Shelf B525 / Box A002

Quantity to consume

Save consumption

User selects the stock which is to be used (or 'Not from stock') by tapping on appropriate line. The application switches then to Spare Part Consumption screen. Here, user is to enter the quantity to be consumed. Consumption is saved by pressing on 'Save consumption' button.

Back
PM5 Mobile
Main Menu

Finish job

Spare Parts

SP-0021
0/2

123456789555
0/3

Add spare part to job

Manhours

Note for next activity

Finish job

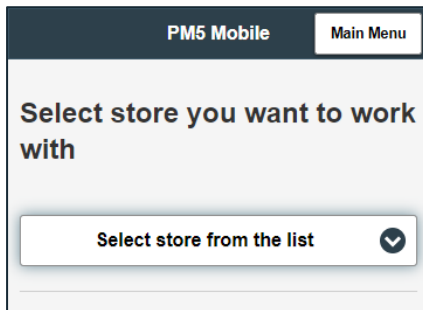
Once the consumption is saved, the application switches back to Finish Job screen for currently selected job. New consumption is now listed in spare part consumption list.

Stores

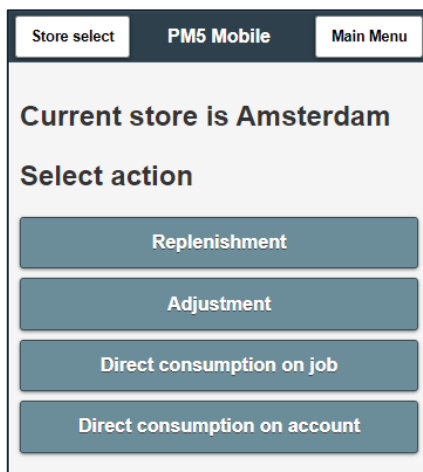
Stores functionality allows the user to handle individual stocks for spare parts registered in PM5. Two spare part stock-related actions are implemented in current version of PM5:

- refill of stocks
- adjustment of stocks

Working with stores in PM5 Mobile

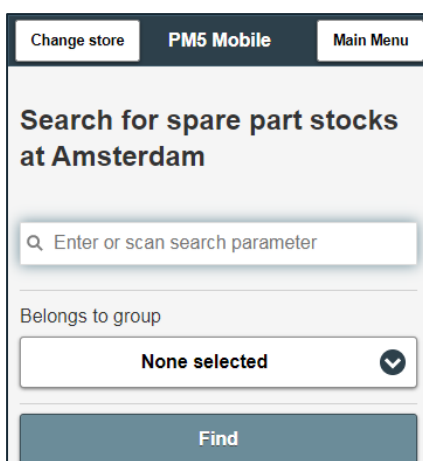


User accesses stores functionality by pressing on 'Stores' button in main menu. If no default store is selected in application's personal settings, user needs always to select the store with which he is to work with. This is done by selecting one of the stores listed in the combobox. Once that selection is done, application shifts to Store Functions screen.



In Store Functions screen, user is to select what action he wishes to perform on spare part stocks. The selection is persistent until user makes yet another selection in this menu on later occasion.

By pressing on 'Store Select' button, user returns to Store Selection screen.



Once both the store and action type has been selected, the application shifts to Spare Part Search screen. It works in the same manner as the corresponding screen in management of spare part consumption when working with jobs.

User is to enter a search parameter and press on 'Find' button.

The search result will include all spare parts that have the search parameter as part of their name or number or barcode value. The selection is however further limited only to those spare parts that have at least one stock in currently selected spare part store.

Search result can be limited to those in a specific spare part group by selecting a spare part group in 'Belongs to group' combobox.

By pressing on 'Store Select' button, user returns to Store Selection

screen.

Found spareparts

123456789555	
Clamping Sleeve D	➔
SP-0009	
Lamp 27-05	➔
SP-0010	
Lamp 27-10	➔
SP-00198	
Socket A-10	➔
SP-0020	
Socket A-15	➔

List of valid spare parts is presented in a selectable list. User selects the spare part he wishes to work with by tapping on spare part name.

'Back' button switches back to spare part search form. Please remember that until manually changed, same store and action selection are in effect.

Once the spare part has been selected, the application switches to either Stock Adjustment or Stock Replenishment screen, depending on currently selected action type.

Spare part stock replenishment

Add to stock

Spare Part Name
Lamp 27-10

Spare Part Number
SP-0010

Store: Amsterdam
Area: Store Area A
Section: Shelf 4
Position: Box A4
In store: 14

Enter quantity here

Add entered quantity to selected stock

When stock replenishment is selected as current action, then selection of a spare part from search result list makes the application to switch to Stock Replenishment screen. In it, detailed information about selected stock is presented to user.

Value entered in the input field is added to current quantity at the stock once 'Add entered quantity to selected stock' - button is pressed. This action is confirmed by a message box shown on the screen for two seconds, after which application switches automatically back to Spare Part Search screen.

Application is then ready for another replenishment action.

Spare part stock adjustment

Back PM5 Mobile Main Menu

Adjust stock

Spare Part Name
Socket A-15

Spare Part Number
SP-0020

Store: Amsterdam
Area: Store Area B
Section: Shelf 7
Position: Box B12
In store: 25

Enter quantity here

Change stock to entered number

When stock adjustment is selected as current action, then selection of a spare part from search result list makes the application to switch to Stock Adjustment screen. Content of this screen is identical to that in Stock Replenishment screen.

However, the value inserted in input screen of Stock Adjustment screen **replaces** current quantity of the stock. This is done when user presses on 'Change stock to entered number'. The change of stock quantity is confirmed by a message box shown on the screen for two seconds, after which application switches automatically back to Spare Part Search screen.

Application is then ready for another adjustment action.

Direct spare part consumption on job

Back PM5 Mobile Main Menu

Scan or type in job number

Search job →

Direct consumption on a job allows the user to create spare part consumption for any job in PM5. The job is selected by its id number, which is entered in the first form of the function.

Back PM5 Mobile Main Menu

Direct consumption on job

Job ID: 1029

Activity Weekly Maintenance

Job details

Machine name:	Valve A-001
Machine number:	30072009-001
Task:	Weekly Maintenance
Task Type:	Weekly Maintenance
Scheduled:	2020-06-22
Completed:	
Signed by:	

Q Spare part name or number

Scan barcode Search

Next, user needs to select the spare part which is to be consumed by the job. User can search for the spare part by entering its number or name into the search field and pressing the search button.

Back
PM5 Mobile
Main Menu

Direct consumption on job

Job ID: 1029

Activity Weekly Maintenance

Job details

Machine name:	Valve A-001
Machine number:	30072009-001
Task:	Weekly Maintenance
Task Type:	Weekly Maintenance
Scheduled:	2020-06-22
Completed:	
Signed by:	

Search results

SP-0009

Lamp 27-05

SP-0010

Lamp 27-10

SP-0008

Lamp 27-40

Search again

If search found any spare parts in the system which corresponded to the search term, a list is shown at the bottom of the screen. User can now select a spare part for consumption, by tapping on it in the list. New search can be done by pressing on button 'Search again', displayed below the list

Back
PM5 Mobile
Main Menu

Direct consumption on job

Job ID: 1029

Activity Weekly Maintenance

+ Job details

Sparepart / Number
Lamp 27-05 / SP-0009

Available stores

Not from stock

Amsterdam (20)

If selected spare part has stocks present at stock locations that are accessible for the machine to which the job belongs, then user needs to select which stock to use for the consumption. User can always select to perform consumption "without stock", i.e. no stock will be reduced by it in the system.

Back

PM5 Mobile

Main Menu

Direct consumption on job

Job ID: 1029

Activity Weekly Maintenance

+

Job details

Sparepart / Number
Lamp 27-05 / SP-0009
Store (Qty)
Amsterdam (20)
Stock location
not selected

Quantity to consume

Save consumption

Once the stock has been selected, information about selected spare part and stock it is displayed on the screen. Information includes:

Name and number of spare part

- Store at which stock is located and quantity currently in stock
- Detailed location of stock at store location, if it is defined in PM5

User creates spare part consumption by entering consumed quantity of spare part and pressing button 'Save consumption'.

Consumption successful.

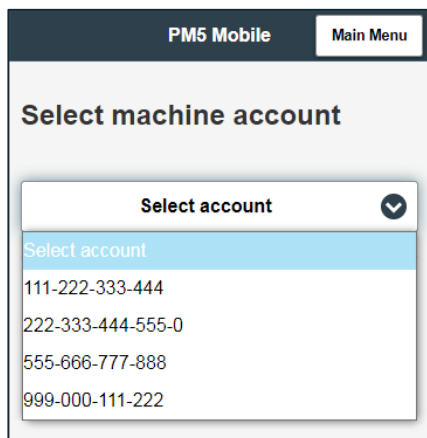
Consumption successful.

Consume another sparepart

Consumption for job done

Once the consumption is saved in the system, user can select whether to consume another spare part for same job or if he's done with this job. If another spare part is to be consumed, the application will navigate to spare part search screen. Otherwise, the user will be transferred to job search form, where he can select another job for direct consumption.

Direct consumption of spare parts on account



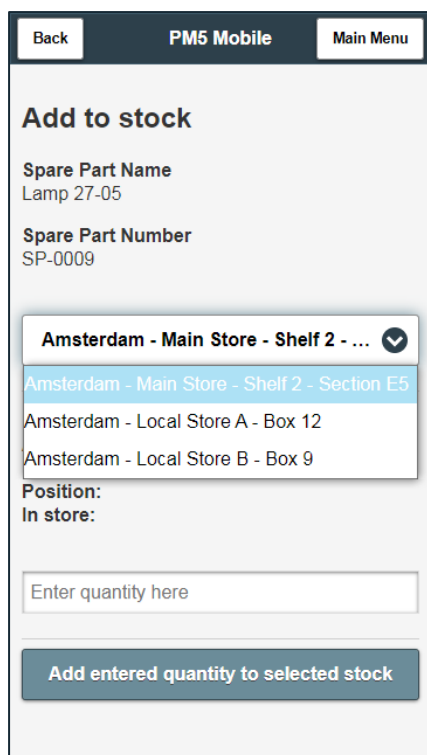
Spare part consumption directly on account creates consumption of spare parts and associates it directly with a machine account, bypassing any associations with machines or jobs. To register such consumption, user is to select 'Direct consumption on account' menu choice. Please observe that if there are no machine accounts created in PM5, then this menu choice will not be displayed on the screen.

If a machine account hasn't been previously selected by user, then user needs to select what account to use for spare part consumptions. This is done by selecting one of the accounts in the list presented to the user.

User can switch between different accounts at any time. A default user account can be selected in personal settings of the application. If this is done, then machine account selection step will be bypassed.

Once a machine account has been selected, the consumption of an individual spare part is done in exactly same manner as direct consumptions on jobs. Therefore, for details about selection of spare part and creation of consumption, please refer to section "Direct spare part consumption on job".

Spare parts with multiple stocks at same store and Stores functionality



On the rare occasions when single spare part has more than one stock at the same store, the Stock Replenishment and Stock Adjustment screens will be presented slightly differently. On those occasions, a combo box listing the different stocks of the spare part is also shown on the screen.

Selection from the list in the combo box automatically updates the information about the stock that is shown on the screen.

More importantly, stock replenishment or adjustment action affects only the stock that is selected in the combo box at the time user presses on the button.

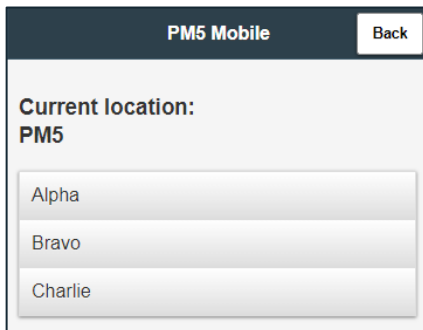
Locations in PM5 Mobile

Selecting location in PM5 Mobile

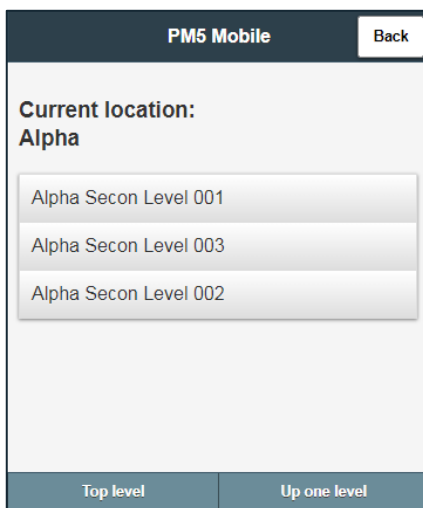
Locations in PM5 Mobile work a little differently from Windows client. Since mobile devices have smaller screens, it is not practical to present location list in form of a tree in mobile client. Instead, locations are presented one level at a time.

Selection of location is done by selecting 'Select location' in Main Menu.

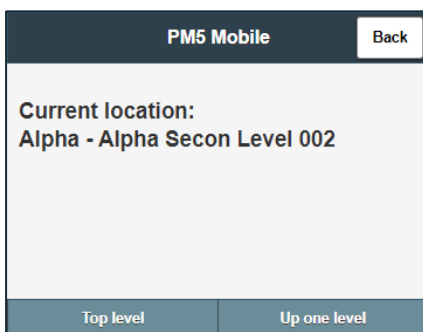
Location page always displays full path of currently selected location at the top. This path is updated with every new location selection.



After user logs in, the selected location is always the top location in PM5, usually called PM5.



A location is selected by tapping it in the list. When this is done and the location has child locations, then the list is updated and shows the locations at next lower level.



If selected location is without any child locations (bottom level), then the location list will be empty.

Navigation **up** in location structure is done with help of two buttons at the bottom of the page:

- 'Up one level' changes currently selected location to the parent of location that is selected by the time the button is tapped. Or, in simple terms, user moves up one level in navigation tree.
- 'Top level' is a shortcut to topmost level in location tree, usually node called PM5.

Please observe that buttons 'Up one level' and 'Top level' are displayed on the screen only after a location other than the topmost one is selected as current location.

Impact of location selection in PM5 Mobile

Currently selected location works in PM5 Mobile in same manner as selection of location in navigation tree of Windows version of PM5. Selection of a location will limit presented data to those relevant for machines located selected location or one of its child locations. This applies to following functions in PM5 Mobile:

- Machine search – search results are filtered, so that only those machines that are located at selected location or one of its child locations are presented in search results.
- Job list – job list is filtered automatically, so that only the jobs that belong to machines located at selected location or one of its child locations are presented in job list.

For sake of convenience, user can disable this filter by simply checking in a checkbox. In machine search page this checkbox is accessible directly on the page. In job list page, it is located at the top of the filter panel. Please observe that disabling currently selected location has no impact on user's location restrictions due to his access rights in user groups to which he belongs – these restrictions are permanent and cannot be bypassed in PM5 Mobile.

Program Configuration

Program configuration allows the user to configure several aspects of the application according to individual needs.

PM5 Mobile Main Menu

User settings

Time period definitions

Recent (days back from today)

Future (days forward from today)

1000

Default store

No store selected

Spare part management sett...

Reason for replenishment

Replenishments

Default account

No account selected

Personal list settings

Sorting direction for personal joblist

Ascending

☒ Remember filter settings between sessions

Program configuration is accessed by pressing on button 'Program Configuration' in Main Menu. Application switches then to Configuration Panel. Here, user can adjust several aspects of the application according to personal preferences.

Important - there is no 'Save' button in this screen. All user settings are automatically saved as user exits Program Configuration by pressing on 'Main Menu' button. Once the settings are saved, application switches back to Main Menu screen.

Time period definitions

Time period definitions section allows the user to specify time span for each of the three sections in Job List section.

- In 'Recent' field, user specifies how many days his list of delayed activities and faults is to include. Time period in 'Recent' list starts with the day before current date and includes a number of past days, as specified by number in this field. As default, the 'Recent' list looks seven days back in time.
- 'Current' job list takes current date as starting point and includes jobs scheduled in the past and the future. Field 'Current (days back)' specified how many days back in time the list is to stretch. Field 'Current (days forward)' specified how many days into the future the list is to stretch.
- Value specified in 'Future' field is used in same manner as that in 'Current (days forward)' field, but is used for the list in 'Upcoming' section of personal job list. 'Upcoming' section starts with current date and includes jobs scheduled for the number of days in the future that is specified in this field. As default, the 'Current' list shows the job list for twenty eight days.

Default store

Here user can select the default store that will be automatically selected whenever Stores function is selected from main menu.

If user hasn't selected a default store, then he needs to select a store every time Stores function is launched. If default store is selected, then the application assumes that it's the store with which user wishes to work and switches directly to Stores Function screen.

Please observe that user can still select a different store from within Stores function.

Reason for replenishment and Reason for adjustment

One of PM5:s features is a spare part stock change log, where all changes of quantities are automatically registered. Each record in this log needs to have a reason selected from user definable list in PM5. In combo boxes 'Reason for replenishment' and 'Reason for adjustment', user has possibility to specify which reason is recorded in PM5 when spare part stocks are changed through PM5 Mobile application.

If user has made no selection in these two combo boxes, then default reasons are used for log purposes - 'Replenishments' when user refills a stock and 'Stock Corrections' when user adjusts stock quantity through stock adjustment function.

If default reasons are not present in the database, then user must select valid stock change reasons before being able to use Stores functionality. In such scenario, when user tries to launch Stores functionality, the application will show a warning informing user about the problem and automatically switch over to Program Configuration screen. This behavior will persist until valid stock change reasons are selected.

Default store

Default store can be used for a preset of the store with which user is working in functions Spare part stock replenishment and Spare part stock adjustment. When a store is selected here, it is selected by default as the store used in the two functions above. User can of course switch to a different store at any time.

Sorting Direction For Personal Joblist

Joblist is always sorted on scheduled date for the job. This setting controls whether the list is sorted in ascending order (oldest jobs first) or descending order (newest jobs first).

Remember Filter Settings Between Sessions

When this checkbox is checked in, values selected in personal job list will be remembered and applied automatically when user logs in.

When this checkbox is not checked in (which is default value), then filter is reset to default selection (job list shows all jobs within selected time period, assigned for currently logged in user) every time user logs in.

Barcode scanning in PM5 Mobile

General description and technical requirements

In version 1.3.3, we have introduced functionality where user can use barcodes for quick selection of machines and spare parts. When operational, the barcode scanning function allows quick selection of machines, spare parts and jobs in pages where searches for those objects is performed.

Following pre-requisites need to exist for barcode scanning function to be active:

- Device where PM5 Mobile is accessed needs to have a camera. For example a mobile phone with camera, laptop computer (usually equipped with a web camera) or a desktop computer with USB web camera.
- Web browser through which PM5 Mobile is accessed needs to be able to run HTML5 and can handle requests from web sites to device hardware. By default, all web browsers released around 2019 and later have this capability.
- Access to device hardware is enabled on the web browser. Especially devices produced by Apple (iPhone, iPad) tend to have this feature disabled because of security concerns.
- When your device needs access to the camera, the connection needs to be using the HTTPS protocol on port 443 and using a certificate on the server running the PM5Mobile website. Talk to your IT department or Tecsys in order to get a certificate installed on the server.

If any of those conditions is not fulfilled, then barcode scanning functionality in PM5 is automatically disabled and all controls used to access it are removed from the application.

Additionally, when user logs in onto PM5 Mobile for first time and it is detected that conditions above are fulfilled, user will be asked for permission to access camera equipment available on the device. User needs to allow this request for barcode scanning function to be available.

Barcode scan functionality in PM5 Mobile is capable of scanning barcode labels created in PM5 or barcodes created by third party software in format CODE128.

Scanning barcodes in PM5 Mobile

Barcode scanning is available in following pages:

- All search pages for machines
- All search pages for spare parts
- Search page for jobs on job ID in section Job List

When barcode search is available, all of the pages listed above will have an additional button, labeled 'Scan with camera'. On next page, there are examples of search pages with barcode scanning available for use, from left to right – machine search, spare part search and job id search.

The first screen, titled 'PM5 Mobile', shows 'Current location: PM5' and an option to 'Include machines at all locations'. It has a 'Machine type (optional)' dropdown set to 'Not selected' and a 'Scan or enter machine number' input field with 'Search' and 'Scan with camera' buttons. The second screen, 'Change store PM5 Mobile', is for 'Search for spare part stocks at Amsterdam', featuring a search parameter input, a 'Belongs to group' dropdown set to 'None selected', and 'Find' and 'Switch to barcode scan' buttons. The third screen, 'PM5 Mobile', shows a 'Scan or type in job number' input with 'Search job' and 'Scan with camera' buttons.

The 'Machine selection' screen has a 'Manual input' button in the top left corner. Below the title, it says 'Scan machine barcode'.

Barcode scan function is accessed by pressing on 'Scan with camera' button. To switch back to manual search page, user needs to press button 'Manual input', present in upper left corner of barcode scan page.

Manual input page is selected as default at the start of every login session. User's selection is remembered individually for machine, spare part and job ID search throughout a login session. When barcode scan is selected for a page, user navigates to page with barcode scan function. Form consists of two main elements:

- On top, there is a frame where any messages and errors will be displayed for user.
- On bottom there is a scan area, which shows live display of image captured by devices camera.

When PM5 detects a barcode it can read, it will automatically make a search for object with corresponding barcode. If such object is found, PM5 will automatically navigate to detail information page intended for that object. Depending on where the search is done from, it will be detail page for machine, spare part or job with scanned id number.

The 'Machine selection' screen displays an error message in a red box: 'Machine with this barcode could not be found. Please try again.' Below the message is a photo of a barcode with the text 'CODE 128 - 55646546565465' printed below it.

If scanned barcode is not found or PM5 is unable to handle scanned value, an a message or error text will be displayed on the screen for 5 seconds. Once it disappears, PM5 is ready for another barcode scan. Example of such scenario is shown in picture to the left.

Appendix A – Change log

Version 1.3.5

- Major overhaul in effort to improve stability of application.
- Graphic user interface redone.
- In spare part search in connection with job consumption, added possibility to include shortlist of spare parts associated with machine in search result.
- Possibility to change sorting order of jobs in job lists. Jobs can now be listed in ascending or descending order, based scheduled date.
- In page for report of new fault and finish fault/activity pages, added 'Cleanup required' flag. Flag is only visible if function is activated in PM5 Administration.

Version 1.3.4

- Added barcode scanning of machine, spare part and job id barcodes .

Version 1.3.3

- For jobs, added functionality for handling of spare part consumptions without having to enter 'Finish job' function. Consumption of spare parts can now be managed directly from detail form for activities and faults.
- For jobs, added functionality for adding of used manhours without having to enter 'Finish job' function. Use of manhours can now be registered directly from detail form for activities and faults.
- Added a cap for maximum records allowed in search results for machines and spare parts. Maximum allowed number of records in search results is set as default to 30. This value can be modified in PM5 Mobile configuration, please contact PCSYS for further information.

Version 1.3.2

- Search page for machines has been extended. Searches can now be made on machine ID fields.

Version 1.3.1

- Job filter has been extended. Jobs can now be searched on job priority.

Version 1.3

- Spare parts can now be selected by scanning their barcode. Please observe that this function requires use of https protocol in communication between web browser and web server on which PM5 is running. Furthermore, the web browser used on hand terminal must allow use of HTML5 features enabling access to camera on mobile devices.
- Machines can now be selected by scanning their barcode. Please observe that this function requires use of https protocol in communication between web browser and web server on which PM5 is running. Furthermore, the web browser used on hand terminal must allow use of HTML5 features enabling access to camera on mobile devices.

Version 1.2

New features

- Control of user's access rights to data, as defined by his membership in PM5 user groups is now implemented in PM5 Mobile client. In previous versions user had access to all data in PM5.
- A location filter allows user to filter information to that relevant to specific location and its sub-locations. This filter corresponds to selection of a location in the navigation tree of PM5 Windows client.
- Activities and faults can be started from mobile client.
- Jobs can be searched on job number.
- Measured parameter readings can now be entered when finishing activities based on measured parameter values.
- Personal job list has been re-made. 'Personal' and 'complete' job lists have been merged into a single job list. Content of this job list is controlled by:
 - user's access right to locations, as specified in user groups to which he belongs
 - currently selected location in PM5 Mobile client
 - filter settings of dedicated job list filter
- A dedicated filter has been created for job lists. User can now filter job list on:
 - Job type
 - Person assigned to sign the job
 - Technical group assigned to the job
 - Task type
 - Fault type
- Spare part searches can now be filtered by specific spare part types
- Personal setting for 'current' time period has been adjusted, so that user can specify how far it is to stretch into past and future with help of two separate settings.
- Consumption of spare parts directly on a job has been added.
- Consumption of spare parts directly on account has been added.
- User defined fault types/Fault reasons groups for machine types have been implemented and work in same manner as in PM5 client for Windows.

Version 1.1

New features

- Historical information page for faults has been redesigned – additional information is now shown about completed faults, including fault description and fault solution.
- Historical information for completed activities has been redesigned – additional information is now shown about completed activities, including task note and activity note.
- In job list, activities and faults that have been started are marked with green lightbulb icon.
- When this information is relevant, information about associated measured parameter is displayed in finish activity screen.
- When an activity based on task that uses measured parameter is finished, user can enter new measured parameter value (same as in PM5 client).
- "Current" time period used in job lists has been modified. User can now decide the span of "Current" time by specifying how many days into the past and the future are to be included in the list.
- Individual jobs can now be searched on job id number in Joblist section.
- Fault type/fault reason groups feature from PM5 client has been implemented.

- Machine search engine has been expanded – user can now limit the search results to specific machine type.

Corrected major faults

Critical error crashing the application after finish of two activities in a row has been resolved.