

Description of Functions 10/2004 Edition

motion control  
information system

SINUMERIK 840D/840Di/810D  
Preventive Maintenance TPM  
Version 1.3

**SIEMENS**



# SIEMENS

## Motion Control Information System (MCIS)

## Preventive Maintenance TPM Version 1.3

### Description of Functions

### Valid for

*Control*                                    *Software version*  
Motion Control Information System (MCIS)    1

10.04 Edition

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# SINUMERIK® Documentation

## Printing history

Brief details of this edition and previous editions are listed below.

The status of each edition is shown by the code in the "Remarks" columns.

*Status code in the "Remarks" column:*

- A** .... New documentation.
- B** .... Unrevised reprint with new order no.
- C** .... Revised edition with new status.

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This publication was produced with WinWord V 8.0 and Designer V 7.0 and the DocuTool AutWinDoc.

Other functions not described in this documentation might be executable in the control. This does not, however, represent an obligation to supply such functions with a new control or when servicing.

We have checked that the contents of this documentation correspond to the hardware and software described. Nonetheless, differences might exist. The information contained in this document is, however, reviewed regularly and any necessary changes will be included in the next edition. We welcome suggestions for improvement.

# Preface

## Structure of the documentation

This document explains the scope of application and the functionality of the **TPM** software package which is designed to support comprehensive maintenance of production plant equipment.

The documentation is divided into the following parts:

- Area of application and function of TPM
- Installation of TPM
- Configuration program for TPM
- EXCEL tool functions for importing and updating files
- Description of the XML interface

## Target readers

This document is aimed at users who wish to implement a properly scheduled maintenance regime for their production equipment (e.g. machine tools, transfer or assembly lines) with minimum process losses. The description will be helpful to users and other interested parties.

## Hotline

If you have any questions about the control, please contact the hotline:

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## How to find information

To help you navigate through the document, in addition to the list of contents, diagrams and tables, the following information is provided in the Appendix:

1. Abbreviations
2. Index

## Danger and warning concept

The following danger and warning symbols are used in this document.  
Explanation of symbols used:



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### **Danger**

Indicates an imminently hazardous situation which, if not avoided, **will** result in death or serious injury or in substantial property damage.

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### **Warning**

Indicates a potentially hazardous situation which, if not avoided, **could** result in death or serious injury or in substantial property damage.

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### **Caution**

Used with the safety alert symbol indicates a potentially hazardous situation which, if not avoided, **may** result in minor or moderate injury or in property damage.

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### **Caution**

Used without safety alert symbol indicates a potentially hazardous situation which, if not avoided, **may** result in property damage.

---

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### **Notice**

Used without the safety alert symbol indicates a potential situation which, if not avoided, **may** result in an undesirable result or state.

---

## Further information

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### Important

This notice indicates important facts that must be taken into consideration.

---


### Note

This symbol always appears in this documentation where further, explanatory information is provided.

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# 1

## 1 Introduction

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## 1.1 Product name

TPM stands for Total Productive Maintenance and provides a comprehensive range of productive maintenance functions.

## 1.2 MCIS for machine tools

MCIS comprises a number of function modules

1. **MDA** (Machine **D**ata **A**cquisition)  
**PDA** (**P**roduction **D**ata **A**cquisition)  
**PMT** (**P**arts **M**onitoring & **T**racking):  
for greater transparency and improved production procedures.
2. **DNC** (Direct Numeric Control): NC program handling for cutting the costs of NC data organization through easier management and supply of NC programs for CNC systems and faster supply of NC programs to SINUMERIK 810D/840D/840Di systems via Ethernet network.
3. **TDI** (**T**ool **D**ata **I**nformation): Tool management system for reducing the tool stock in circulation and minimizing machine downtimes.
4. **TPM** (Total Productive Maintenance) Fault management for supporting the machine operator with maintenance activities on machines and plant.
5. **RCS** (**R**emote **C**ontrol **S**ystem) Remote diagnostics for reducing machine downtimes through prompt communication of faults and very simple online telediagnosics.

## 1.3 Objectives of TPM

The key objective of TPM is to maximize the efficiency of production plant operation by applying maintenance schedules which are designed to minimize process losses.

TPM is an optimized maintenance system for machine tools and transfer or assembly lines. It is designed specifically for production floor applications.

The following activities are displayed on the operating panel of the machine:

- Cleaning
- Inspection (verification of actual condition)
- Maintenance (preservation of target condition)
- Repair (restoration of target condition)

Activities and intervals (time and event-controlled) are defined by the machine manufacturer or operator. The machine operator performs the activities and acknowledges them on the operator panel.



## 1.4 Architectures

### 1.4.1 TPM local data management

TPM is available for application on single machines or for use on unit operator panels. In this case, data are managed locally.

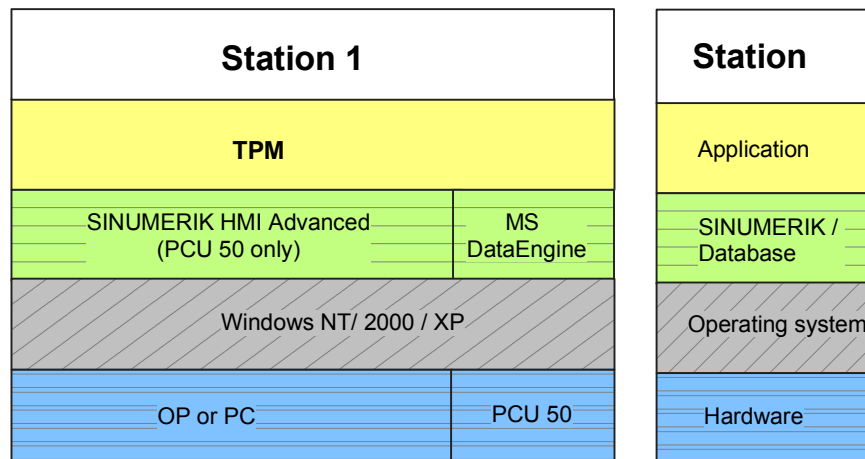


Fig. 1-1 TPM architecture for local data management

### 1.4.2 TPM central data management

TPM is also available for application on a central master control, i.e. in a client/server architecture. In this instance, all data are managed centrally.

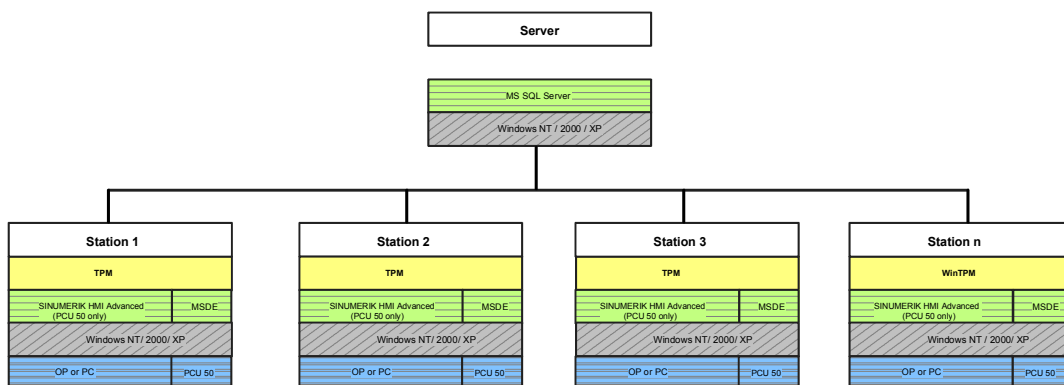


Fig. 1-2 TPM architecture for central data management

## 1.5 Database

### 1.5.1 Database handling

#### Create new data records

If you create new data records in the TPM database, these are set up for all installed languages.

#### Edit data records

When you edit data records, the following occurs in the TPM database: Language-dependent database content such as measures, modules, service groups, etc. are edited in the currently selected language. The data records in other languages remain unchanged.

### 1.5.2 Data volume for TPM with local database

A machining center has 100 to 200 maintenance data records. A machining center generates about 10 000 maintenance messages per year. The approximate size of a maintenance data record is 300 bytes. The calculated data volume is therefore as follows:

Table 1-1 Data volume of local database

	Period	Data record volume	Bytes
Look Ahead	6 months	5.100	Approx. 1.5 MB
History	10 years	100.000	Approx. 25 MB
System data		50	Approx. 0.5 MB
Total			<b>27 MB</b>

### 1.5.3 Data volume for TPM with central database

The volume of data generated depends on the plant size. The data volume must therefore be calculated on an individual plant basis.



# 2

## 2 Hardware

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## 2.1 Hardware components

TPM can be operated on the following hardware components:

- OP010 with PCU 50
- OP012 with PCU 50
- OP015 with PCU 50
- PC with the Windows NT 4.0 SP6 operating system
- PC with the Windows 2000 / XP operating system



# 3

## 3 Software

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## 3.1 General

### 3.1.1 Software environment

The software requirements for **TPM** are as follows:

- HMI software version (standard Sinumerik operator interface), V06.01.08 or later. Version 06.02.10 or later is required for alarm support.
- Operating system: Windows NT 4.0, Service Pack 6 or later
- Windows 2000
- Windows XP
- Windows 2003 Server

### Data management

Data are managed in the MSDE (Microsoft Database Engine) database.

### Triggering of alarms (OP only, not PC)

Alarms cannot be activated unless HMI software version 06.02.10 or later is installed. In this case, when a main message is generated, an alarm with number 420000 is also activated. If you acknowledge this main message in TPM (green traffic light), the alarm is reset again. (This function is not available when TPM is installed on a PC.)

### 3.1.2 Installation

The software package includes an installation routine (SETUP).

This routine supports the OEM user or machine manufacturer through the entire installation procedure.

The software is installed on an OP 010, OP 012 or OP 015. It can be loaded via an external CD-ROM or a network drive.

### Database

The installed database contains sample activity data records. They can be deleted with the configuration program. New data records are created by the relevant machine manufacturer and imported to the database by means of the EXCEL tool (also included on the installation CD).

### Data import

A configuring routine is provided for importing data and other administrative activities.

---

**Note**

You will find important information regarding the installation/configuration of TPM in file "Readme.txt" in the main directory on the installation CD. You should read this file before installing the software.

---

### 3.1.3 Data formats

#### Extracts from the Maintenance Manual (Guide) and online help

Help texts and graphics in the extracts from the maintenance manual and online help are displayed in PDF format.  
Adobe Acrobat Reader version 4.05 is used as the viewer.

---

**Notice**

You must deinstall any Adobe Acrobat Reader version later than 4.05 **before** you begin installing **TPM!**

---

#### Plant diagram graphics

Graphics must be available in PDF format. The storage path for graphic images of the plant is defined in the configuring routine for **TPM** in menu **System Data → Configuration, Initial Settings** tab.

---

**Note**

If the Internet Explorer is used as the viewer, the graphics can also be provided as .JPG files.

---

#### Maintenance data records

Maintenance data records are added to or removed from the database via the import and export function respectively. The porting functions generate or expect the MS-Excel-compatible TPM format. The maintenance data records define all the activities required to maintain and service the production facility.

### 3.1.4 Language selection

The language is selected via the standard SINUMERIK operator interface. 8 standard languages are available. The first language is preprogrammed, the second language can be preselected.

---

**Note**

If **TPM** is installed on a PC, you select another language by means of a button that is not visible on an OP.

---

### 3.1.5 Access protection for maintenance data records

#### Read-only data records

Manufacturers can basically parameterize the maintenance data records for their products as read-only data. In this case, the user can simply alter the **Announcement Limit** and **Duration** fields so as to enter his own empirical data. Read-only records are identified by a **1** in the **Flags** column of the import Excel table (*FileName.tpm*). The data are then displayed in read-only output fields in the **Detail Screen** menu.

#### Read and write data records

If the maintenance records are not protected by the manufacturer, all the data they contain can be edited by the user. Records of this type are identified by a **0** in the **Flags** column of the import Excel table (*FileName.tpm*). The data are then displayed in input fields in the **Detail Screen** where they can be edited.

### 3.1.6 PLC interface

#### Link to PLC via OPC interface

The software communicates with the PLC via the OPC interface. This is implemented as standard with HMI software version 06.01.08 and later. Specification of DB 19 from data byte 268 to data byte 394:

Table 3-1 Specification of DB 19

Data byte			Designation	Significance
268	2	Byte	Lights symbol	1 green 2 amber 3 red
270	4	Byte	Hours run counter 1 in min.	0,1,.....
274	4	Byte	Hours run counter 2 in min.	0,1,.....
278	4	Byte	Machine cycle 1	0,1,.....
282	4	Byte	Spare	0,1
286	4	Byte	Spare	
...				



## 3.2 Description of functions

TPM manages all the activities involved in maintaining a production plant or machine. All maintenance jobs required are displayed in the List of Current Activities.

You can selectively view **current jobs or activities** with particular characteristics by applying filters which you set up and activate in a separate dialog.

---

See also section: Details

### 3.2.1 Messages

A so-called "maintenance message" is generated when a preconfigured maintenance interval elapses. The system uses two types of message: When a maintenance message (referred to below as either "main message" or "announcement" (advance warning)) is activated, it drives the so-called TPM Lights



in the TPM general display area.

#### Announcement

An announcement is activated if a preconfigured warning limit prior to generation of a main message is exceeded.



When announcements are active in the list of current activities, the TPM Lights switch to amber. The announcement in the list of current activities is displayed in



an amber box. The lights do not switch to green again until all announcements have been acknowledged. Each message must be acknowledged separately. The announcement is displayed in an amber box in the list of current activities.

#### Main message

A main message is activated when the maintenance interval or the operating period of a machine or piece of equipment is exceeded.



When main messages are active in the list of current activities, the TPM Lights switch to red. The main message in the list of current activities is displayed in a red



box. The lights do not switch to green again until all messages have been acknowledged. Each message must be acknowledged separately. When a main message is acknowledged, it is removed from the list of current activities and transferred to the history list. Here it is displayed with the time of acknowledgement and the code of the person who acknowledged it.

## Acknowledge messages

Messages are acknowledged with the **Acknowledge** softkey in the Acknowledge Activity dialog.

---

See also section: Acknowledge

TPM does not have any direct influence on the machine (e.g. forced shutdown) even if you ignore every maintenance message and warning!

### 3.2.2 History

The list of completed activities displays a history, i.e. all acknowledged messages. The table can be sorted according to each display column. You can also create, activate or deactivate different filters for particular selection criteria. These filters are set up and activated in a separate dialog.

---

See also section: Details

### 3.2.3 Details

TPM enables you to display details of maintenance data records and, if permitted by the manufacturer, to edit them. You can also create additional new data records and link each one with an extract from the maintenance manual.

---

See also section: Operating Instructions

### 3.2.4 Online help

You can call descriptions of program functions via an Info key. (Key ( **i** ) **HELP** on the OP 010, OP 012. **Help** softkey (=F8) on the PC, OP 015).

## 3.3 Screen form layout

### 3.3.1 Screen form layout with control via softkeys

#### General

The initial entry point to TPM is the **TPM** softkey on the HMI interface. You can define the TPM start screen via system parameters. You can choose any of the TPM function screens as a start screen.

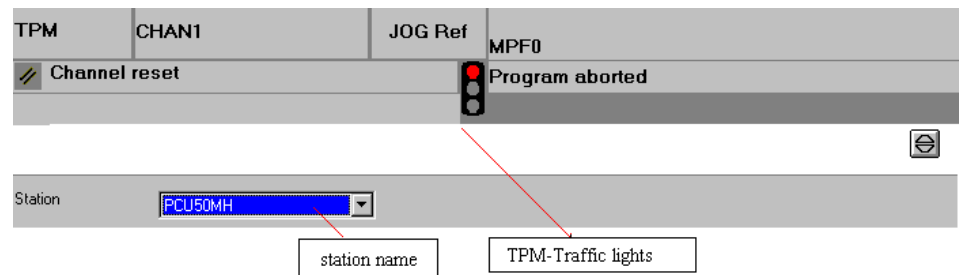


Fig. 3-1 General overview area in all screens with TPM Lights symbol



Fig. 3-2 Standard Sinumerik operator interface

### 3.3.2 Screen form layout with control via menu / toolbar (PC version only)

#### General

A screen form layout with operator control via menu / toolbar is displayed as standard for the PC version.

#### Note

If you want the layout with softkey control for the PC version, you can activate it in the configuration tool by deselecting menu options **View** → **PC Version** → **Menu** and **Toolbar**.

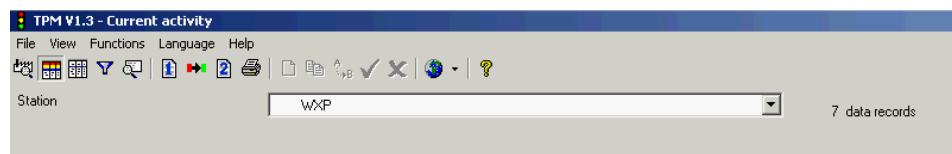


Fig. 3-3 TPM operator interface (PC version only) with menu and toolbar control

The start screen can be integrated by any of the following softkeys.

Table 3-2 Function keys and softkeys

Softkey or function key	Name of softkey
F1	Plant diagram
F2	Current Activities
F3	Completed activities (history)
F4	<i>Not assigned</i>
F5	PC only: Change language
F6	<i>Not assigned</i>
F7	System parameters
F8	Help (PC and OP015 only)
Shift + F1 to Shift + F8	Vertical softkeys from top to bottom, assigned as a function of program

#### Note

The traffic lights icon displayed in the HMI Advanced header is not valid until TPM has been started by softkey! No status is displayed beforehand, i.e. the lights symbol is completely grayed out.

## 3.4 Screen forms

### 3.4.1 Plant diagram

#### General

A plant diagram is available on every unit operator panel and on the master control. The plant diagram is a static image of the machine or plant to help personnel find the location at which maintenance is required.

#### Note

Plant diagrams must be available in .PDF format.

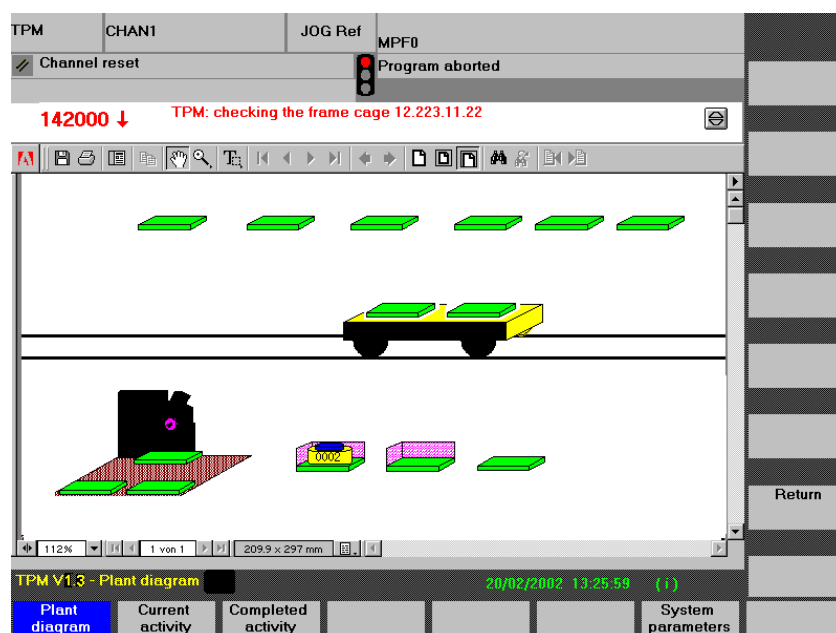



Fig. 3-4 Plant diagram

#### Return function (with softkey control variant only)

By selecting the **Return** softkey, you can return to the previously selected screen.

#### PC version with menu and toolbar interface

The plant diagram is selected via menu options **View** → **Plant Diagram** or via the toolbar icon .

### 3.4.2 Current activities

#### General

This screen form is available in both the master control and on the unit.  
In the TPM server variant, you can view the current activity lists of all connected units. Select the unit you wish to view in the **Station** drop-down list in the top, left-hand corner of the screen.  
In the TPM single-location variant, the station field shows the station name of the individual station.

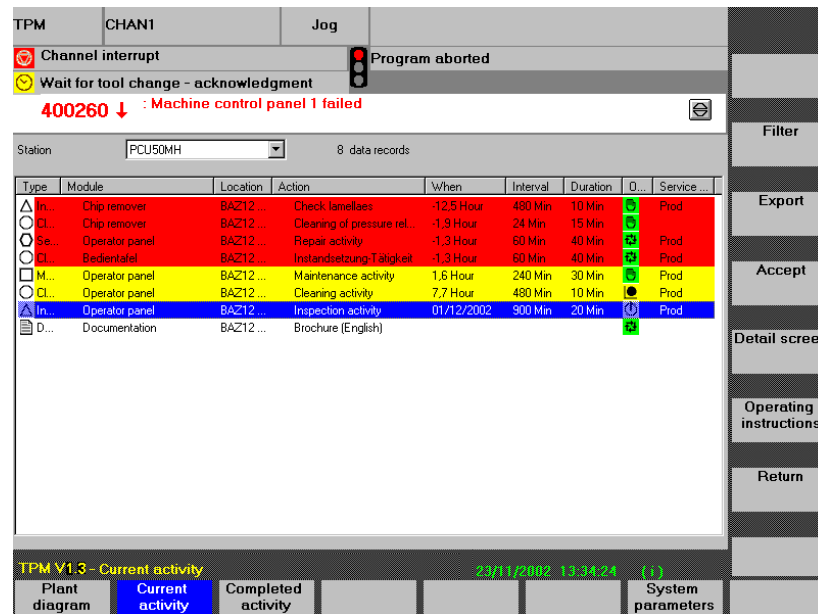



Fig. 3-5 Current activities

#### PC version with menu and toolbar interface

The **Current Activities** screen is selected via menu options

**View** → **Current Activity** or via the toolbar icon .

#### Contents

The list of current activities is described in detail in the following columns:

- **Type** (of job)
- **Module** (module designation)
- **Location** (number which identifies the maintenance location)
- **Activity** (brief description of task)
- **When** (time to go before maintenance is due)
- **Interval** (interval between jobs in units of: Minutes, hours, days, weeks, months or cycles)
- **Duration** (time required to complete job excluding preparation time (setup times))
- **O...(perating mode)** (mode of operation in which task must be performed)

- **Service group** (group of personnel responsible for performing maintenance task)
- **Station** (with central database only: Name of station on which maintenance is to be performed)

---






### Note

The list display of current activities can be sorted according to list content via the column headings. The sorting remains valid while the screen form is selected. The list of current activities is refreshed automatically when the TMP Lights status changes. When the list is refreshed automatically, it is sorted according to **WHEN** again.

---

### Type column


The **Type** column displays a symbol indicating the type of job required. The type categories and their symbols are shown below:

- Cleaning 
- Inspection 
- Maintenance 
- Repair 
- User-defined type, defined in the configuration program, although the "Message Description" and "Scheduling" sections are not active. 

### Module column

The **Module** column contains the exact designation of the component or module which requires attention.

Example: "Pressure relief valve"

A  symbol in this column means that a comment is stored for this action. The comment can be edited in the **Details** screen.

### Location column

The **Location** column displays a unique numerical value xx.xxx.xx.xx which identifies the location of the machine which requires maintenance.

Table 3-3 Code numbers for maintenance locations

Position	Designation (xx.xxx.xx.xx)
1,2	Physical code number (electrical, mechanical, fluid...)
3,4,5	Module classification
6,7	Component
8,9	Component serial number

---

**Note**


All maintenance locations on the machine should be marked according to their software designation!

---

**Action column**

The **Action** column contains a brief description of the job to be performed.

Example: "Check flame cage"

A  symbol in this column means that there is an additional action which can be displayed and edited in the **Detail Screen**. Both actions are then "ORed", i.e. the action must be taken if one of the two jobs is due.

Example: Job1 = oil change after 1 year

Job2 = oil change after 15000 operating hours (cycles)

Oil change is due after 1 year or after 15000 operating hours.

**When column**

The **When** column displays the so-called "time to go" until maintenance becomes due.

The time can be shown in various units (minutes, hours, days, weeks, months, cycles).

A positive display (+) indicates the remaining time period until maintenance is due.

A negative display (-) indicates the period which has already elapsed since the due maintenance date was missed.

A new calculation of job deadlines is initiated either by

- copying in new or overwriting existing job data records or by
- acknowledging the relevant data record.

---

**Note**

If this column contains a date, then the relevant action is not activated until this date.

---



**Warning**

Jobs sorted according to the **When** column are sorted according to time of day. Times to go that are defined on the basis of machine cycles or machine operating times (rather than date/time) are projected as a time value for the purpose of list sorting.

---



**Projection formula:**

T=Machine Cycles; MM=Machine Minutes; TM=Time Minutes

Time to go  
in TM= 
$$\frac{(\text{interval in MC/MM (curr. MC/MM-MC/MM when last acknowledged)}) * (\text{curr. date} \\ \text{acknow. date})}{(\text{Curr. MC/MM-MC/MM when last acknowledged})}$$

**Example:**

Interval in machine operating time hours  
(Machine Auto, Machine On)

**Prerequisites**

Interval: 100 h  
Machine oper. time/day: 3 h/day

**Projection for 30 days**

Time to go: Interval  
(days\*machine oper. time/day) 100h-(30days\*3h/day)=10h

**Display**

Time to go  
display: Time to go/machine oper. time/day 10h/3h/day=3.33 days

**Note**

The machine is sorted according to a machine operating time to go of 10 h and maintenance deadline of 3.33 days.

**Interval in machine operating time cycles****Prerequisites**

Interval: 10000 cycles  
Machine oper. time/day: 400 cycles/day

**Projection for 20 days**

Time to go: Interval  
(days\*machine oper. time/day) 10000 cycles -  
(20days\*400 cycles/day)=  
2000 cycles

**Display**

Time to go  
display: Time to go/machine oper. time/day 10000cycles/2000cycles/day  
=5 days

**Note**

The machine is sorted according to a time to go of 2000 cycles and maintenance deadline of 5 days.

### Interval column

The **Interval** column may contain one of the following:

- Time interval as calendar time (minute, hour, day, week, month)
- Time interval as operating hours (minute, hour, day, week, month)
- Cycle interval as a machine cycle (cycle)

### Duration column





The **Duration** column specifies the time required to complete the job excluding setup times.

This information is specified by the machine manufacturer.

### Mode column

The **Mode** column contains a symbol indicating the operating mode which must be selected on the machine for the job to be performed. The following symbols are used to represent different modes:

Table 3-4 Operating modes

Function	Symbol
Setup mode	
Automatic	
Manual mode (setup mode locked)	
Off	

### Service Group column

The **Service Group** column contains a code (maximum 5 characters) which identifies the personnel group responsible for the maintenance job.

Table 3-5 Service groups / examples

Code	Explanation
IH	Maintenance
PROD	Production
EXT	External service provider
12345	Telephone number
	...

---

#### Note

New people with the appropriate code can be added to the service group in the **System Parameters** screen form, tab card **Service Group**.

---



See also section: System parameters

### Meaning of red background display

Maintenance is now overdue or a machine or unit has exceeded its permissible operating time. A main message is triggered. The maintenance activity has not yet been performed or acknowledged.

---

#### Note

The TPM Lights  switch to red. The lights do not switch to green  again until all messages have been acknowledged. Each message must be acknowledged separately.




---

### Meaning of amber background display

The announcement limit of a maintenance interval has been exceeded. An announcement is triggered.

---

#### Note



The TPM Lights  switch to amber if no main messages are active. If a main alarm is active, the lights symbol is . The lights do not switch to green  again until all announcements have been acknowledged. Each message must be acknowledged separately. The color change to amber is reset in the current activities list if the announcement is only confirmed, but not acknowledged. The TPM Lights change to green if no other messages are active.

---


### Meaning of white background display

The normal view of the activity preview is text on a white background.

### Meaning of blue background display

A job selected with the cursor (by means of the ,  keys or the mouse) is displayed on a blue background which indicates that it is selected for further editing or display.

## Button

The column width of the "Current Activities" table can be adjusted with the mouse. Click on the  button to restore the default column widths.

## Filter function

You can apply a filter to the list display of current activities. Filter selection is activated with the **Filter** soft key. Once you have enabled the appropriate filter settings, you can return to the display of current activities by selecting the **Return** button. The display content is then filtered accordingly.

---

### Note

**Filter active** will be displayed at the top right of the screen to indicate that the filter is active.

---

---

See also section: Details

## Acknowledge function

You can use the **Acknowledge** (Accept) softkey to acknowledge main alarms and confirm announcement alarms. You can also use it, however, to acknowledge any selected maintenance activity once the job is completed irrespective of whether an message is active.

---

See also section: Acknowledge

## Details function

This softkey switches the screen over to the detail view of the selected data record. Here you can view or edit detailed data for the selected current job, or copy them for use in new data records.

---

See also section: Details

### Operating Instructions function

You can display extracts from the maintenance manual by selecting the **Operating instructions** softkey.

These extracts are a description of the job to be performed with instructions for the maintenance personnel. Extracts from the maintenance manual are generally guide texts of 1 to 2 DIN A4 pages in length. The text is supported by graphics.

---

#### Note

Each extract from the maintenance manual is either a separate PDF file or it is a complete document in which you can jump to specific pages by entering a page number.

---

See also section: Operating Instructions

### Unit Image function

Another PDF document (normally an image of the unit which requires maintenance) can be stored here as an appendix to the operating instructions.

### Return function (with softkey control variant only)

The **Return** softkey returns you to the previously displayed screen form.

### 3.4.3 Completed activities

#### General

This screen form is available in both the master control and on the unit. In the TPM server variant, you can view the completed activity lists of all connected units. Select the unit you wish to view in the Station drop-down list in the top, left-hand corner of the screen. In the TPM single-location variant, the station field shows the station name of the individual station.

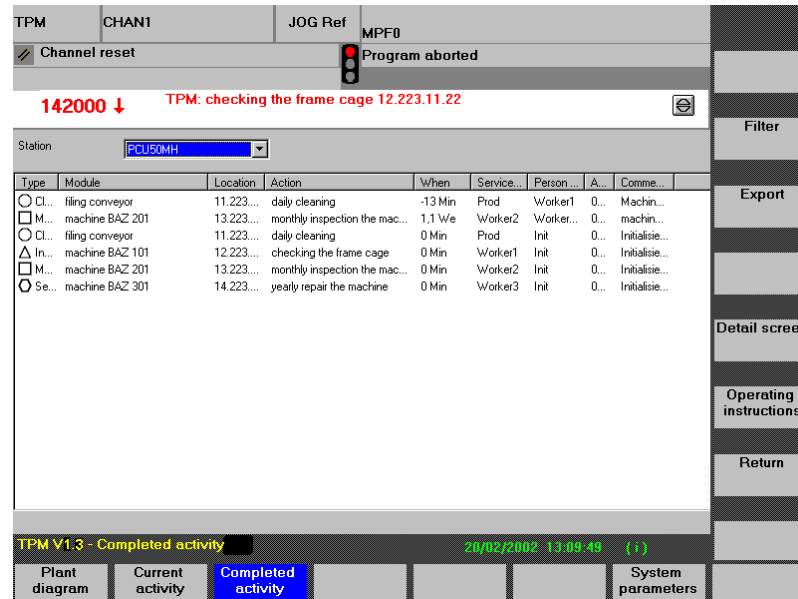



Fig. 3-6 Completed activities

#### PC version with menu and toolbar interface

The **Completed Activities** list is selected via menu options **View → Completed Activity** or via the toolbar icon .

## Content

The list of completed activities is described in detail in the following columns:

- **Type** (of job)
- **Module** (module designation)
- **Location** (number which identifies the maintenance location)
- **Action** (brief description of task)
- **When** (time to go before maintenance is due)
- **Service group** (group of personnel responsible for performing maintenance task)
- **Person** (name of person who performed job)
- **Acknowledged At** (time at which alarm was acknowledged)
- **Comment** (comment by person who acknowledged the alarm)
- **Effort** (time in minutes actually required to perform job)
- **Station** (with central database only: Name of station on which maintenance has been performed)

---






### Note

The list display of completed activities can be sorted according to list content via the column headings. The sorting remains valid while the screen form is selected.

---

## Type column


The **Type** column displays a symbol indicating the type of completed job. The type categories and their symbols are shown below:

- Cleaning 
- Inspection 
- Maintenance 
- Repair 
- User-defined type,  which is defined in the configuration program

## Module column

The **Module** column contains the exact designation of the component or module on which the job was performed.

Example: "Pressure relief valve"

A  symbol in this column means that a comment is stored for this action. The comment can be edited in the **Details** screen.

### Location column

The **Location** column displays a unique numerical value xx.xxx.xx.xx which identifies the location of the machine on which the job was performed.

Table 3-6 Code numbers for maintenance locations

Position	Designation (xx.xxx.xx.xx)
1,2	Physical code number (electrical, mechanical, fluid...)
3,4,5	Module classification
6,7	Component
8,9	Component serial number

---

#### Note


All maintenance locations on the machine should be marked according to their software designation!

---

### Action column

The **Action** column contains a brief description of the job performed.

Example: "Check flame cage"

A  symbol in this column means that there is an additional action which can be displayed and edited in the **Detail Screen**. Both actions are then "ORed", i.e. the action must be taken if one of the two jobs is due.

Example: Job1 = oil change after 1 year  
Job2 = oil change after 15000 operating hours (cycles)  
Oil change is due after 1 year or after 15000 operating hours.

### When column

The **When** column displays the so-called time to go, i.e. the difference between the deadline for due maintenance and the time that the maintenance job was actually completed.

The time can be shown in various units (minutes, hours, days, weeks, months, cycles).

A positive display (+) indicates the remaining time period until maintenance was due.

A negative display (-) indicates the period between the (missed) maintenance deadline and the time at which the job was actually performed.

A new calculation of job deadlines is initiated either by

- copying in new or overwriting existing job data records or by
- acknowledging the relevant data record.



### Service Group column

The **Service Group** column contains a code (maximum 5 characters) which identifies the personnel group responsible for the maintenance job.

Table 3-7 Service groups / examples

Code	Explanation
IH	Maintenance
PROD	Production
EXT	External service provider
54321	Telephone number (in-house)
	...

---

#### Note

Groups of people and their codes are defined in the **System Parameters** screen form, tab sheet **Service Group**.

---

See also section: System parameters

---

### Person column

The **Person** column contains the name of the person who performed the job and acknowledged the work and/or alarm with his/her name. The name can be 20 characters in length.

### Acknowledged At column

The **Acknowledged At** column specifies the time at which the maintenance due message was acknowledged. The display format for the German language code is as follows:

DD.MM.YYYY HH:mm. The acknowledgement time display is language-dependent.

---

#### Note

The acknowledgement time is also the time at which the new maintenance interval is calculated.

---

### Comment column

The **Comment** column contains the text entered in the comment field as the maintenance job was acknowledged. The column remains empty if no text is entered.

### Operating Instructions function

You can display extracts from the maintenance manual by selecting the **Operating instructions** softkey.

These extracts are a description of the job to be performed with instructions for the maintenance personnel. Extracts from the maintenance manual are generally guide texts of 1 to 2 DIN A4 pages in length. The text is supported by graphics.

---

#### Note

Each extract from the maintenance manual is a separate PDF file or it is a complete document in which you can jump to specific pages by entering a page number.

---

See also section: Operating Instructions

### Unit Image function


Another PDF document (normally an image of the unit which requires maintenance) can be stored here as an appendix to the operating instructions.

### Return function (with softkey control variant only)

The **Return** softkey returns you to the previously displayed screen form.

### 3.4.4 Filter

#### General

By clicking on the **Filter** softkey (with softkey control variant) or selecting menu options **View** → **Filter**, or toolbar icon , you can display a dialog window for parameterizing filter settings for the job lists. Filter settings already defined are displayed in the output window. Whether a filter is activated or deactivated is controlled with the preceding checkbox. Any number of filter settings can be defined. Active filters are ANDed. The filter definition display can be sorted according to column headings.

#### Note

**Filter active** will be displayed at the top right of each of the activity list screens to indicate that the filter is active.

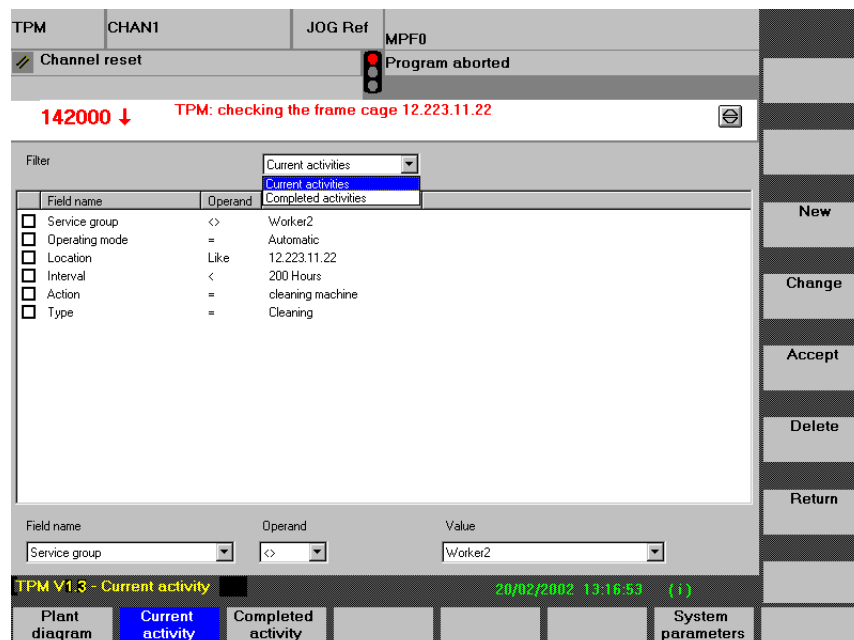


Fig. 3-7 Filter functions

## Assignment between screen forms and filter definitions

In the top list box (above display window), you can select the screen form to which the filter settings apply or will apply. You can choose between:

- List of current activities
- List of completed activities

## Filter definition display window

The display window shows all the filter settings defined for the list of current or completed activities. The default setting for screen form assignment (current or completed activities) of filter definitions matches the job list from which you call the filter screen setting.

---

### Note

Active filter definitions are identified by the enabled symbol in the checkbox. Since activated filters are ANDed, you might obtain an empty "hit list" if several filters are active simultaneously.

---

## Define a new filter

A filter is defined via parameters **FieldName**, **Operand** and **Value**.

The parameter **FieldName** matches the column headings in the list of jobs depending on whether the filter settings apply to the list of current or completed activities.

As a function of parameter **FieldName**, the **Operand** parameter can assume the following values:

Table 3-8 Operands of filter functions

Operand	Meaning	Example
=	equal to	TYPE=Cleaning
<>	not equal to	Mode <> OFF
<	less than	Interval<20 days
>	more than	Interval>200 hours
like	equivalent to	Service group like IH%

---

### Note

The % sign serves as a wildcard for an unspecified number of characters; the \_ sign is a wildcard for exactly one character.

### Strings

Wildcards cannot be used in strings with operands <, >, <> and =.

Example:

> H means that the following strings are included:

- Strings beginning with H and more than one character in length
  - Strings beginning with a letter listed after H in the alphabet
-

The **Value** parameter contains all the values permitted for the **FieldName** parameter.

You must first define the reference parameter in the **FieldName** selection list. You then assign a value to it via the **Operand** and **Value** parameters.

**Warning**

When you select the **Accept** softkey, the new filter setting is added to the filter selection list and activated immediately.


---

**Note**

If the value assigned to the field name **When** is cycles, 1 cycle is defined as 1 minute.

---

**Edit a filter**

To edit a filter definition, select the **Edit** softkey (with softkey control variant or menu options **Functions** → **Edit**, or click on toolbar icon ). The filter definition at the top of the list is always selected. While you are editing a filter definition, it is displayed on a gray background.

**Warning**

When you select the **Accept** softkey, the edited filter setting is added to the filter selection list and activated immediately.

---

See also section: Current and Completed Activities

---

## 3.5 Functions

### 3.5.1 Details

#### General

The **Details** screen can be called on the master control and on the units.

---

#### Note

Data records can be edited if they are released for editing by the manufacturer.

---

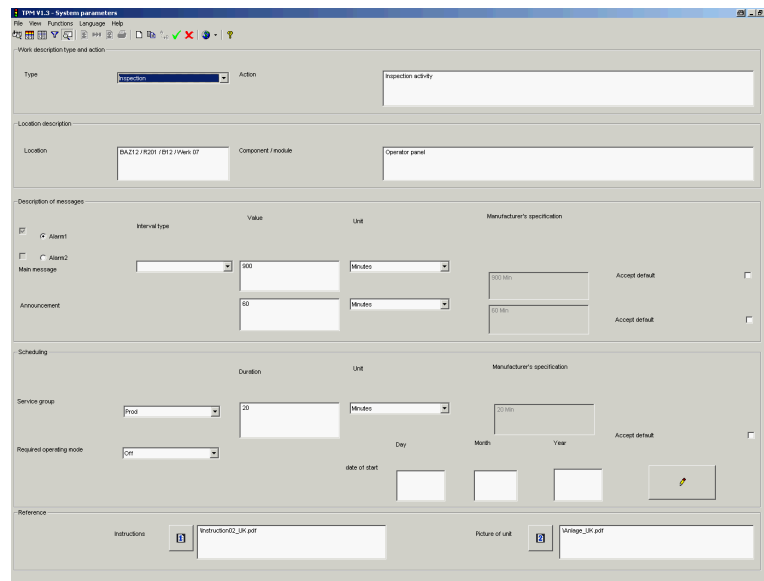



Fig. 3-8 Detail screen for a job

#### PC version with menu and toolbar interface

The **Details** screen is selected via menu options **View** → **Details** or via the toolbar icon .

## Work description type and action

Table 3-9 Work description

Type of job	Action
<b>Cleaning</b>	Brief description of cleaning job
<b>Inspection</b>	Brief description of inspection
<b>Maintenance</b>	Brief description of maintenance job
<b>Repair</b>	Brief description of repair job
User-defined type which is created in the configuration program	

## Location description

Table 3-10 Description of location of maintenance job

Location / code (xx.xxx.xx.xx)		Component / module
Positions: 1,2	Physical code number (electrical, mechanical, fluid...)	Description of module or component
Positions: 3,4,5	Module classification	
Positions: 6,7	Component	
Positions: 8,9	Component serial number	

## Message description

You can set up two jobs (alarm1/alarm2) for each action. If two jobs exist they are "ORed", i.e. the job that is due first causes a color change (to amber or red).

The message description section is divided into "Announcements" (advance warnings) and "Main messages" (main alarms).

It defines the maintenance interval prescribed for the selected maintenance job. If permitted by the manufacturer, you can edit the maintenance interval and adapt it to suit your requirements.

Table 3-11 Message description

Interval type	Value	Unit (of maintenance interval)	Manufacturer's specification
Machine cycles	Value of unit for maintenance interval	Cycle	Manufacturer's specification for maintenance interval of activity
Time		Minutes	
Machine ON		Hours	
Machine Auto		Days	
		Weeks	
		Months	

The main alarm (message) is always activated when the maintenance interval expires. The announcement (advance warning) is activated at some earlier point in time.

**Note**

If the main message has an interval of 500 hours, and the announcement an interval of 25 hours, the announcement is activated 25 hours before the main message.

You can accept the manufacturer's original specification for the maintenance interval for a particular job by clicking on the "Accept Default" checkbox.

**Scheduling**

You must take the following factors into account when scheduling maintenance jobs:

- Service group
- Required operating mode of machinery to be maintained
- Time required to perform job (duration)

The Scheduling section of the screen form defines the time scheduled for the selected maintenance job. You can always edit the time to suit your own requirements.

Table 3-12 Message description

To be performed by		Required operating mode	Duration	Unit	Manufacturer's specification
<b>Code</b>	<b>Explanation</b>	Automatic	Time taken to perform job	Cycle	Manufacturer's specification for time to perform job
IH	Maintenance	Manually		Minutes	
PROD	Production	OFF		Hours	
EXT	External service provider	Jog mode		Days	
12345	Telephone number			Weeks	
...				Months	

**Note**

You can accept the manufacturer's original specification for the time taken to perform a particular job by clicking on the "Accept Default" checkbox in the Scheduling section.



### Starting date

This date specifies when an job is to be activated. This date can be entered if it is known when a machine is to be commissioned. Only after that date are the set intervals taken into account.

### Comment button

You can enter a comment of a maximum of 4096 characters in length for each job.


---

#### Note

You can only enter alarm2 or a comment after you have confirmed a job.

---

### Operating instructions reference

This reference indicates where you can find more detailed information about the maintenance job concerned. It relates to extracts from the maintenance manual which you can call by selecting softkey **Operating Instructions** (with softkey control variant), or via menu options **Functions** → **Operating Instructions**, or the tool icon .

---

#### Note

The basic path for PDF files is defined in screen form **System Parameters** → **tab Initial Settings** → **PDF Files** box.

#### Example:


Basic Path for PDF Files: `F:ADD_ON\TPM\PDF\`

Operating Instructions Ref. in **Detail** screen: `Guide\Insth.pdf`

---

### Unit display reference

This reference indicates where you can find an additional graphic appended to the instruction manual.

You can display this by clicking on softkey **Unit Image** (with softkey control variant) or menu options **Functions** → **Unit Image**, or the toolbar icon .

## New function

The **New** softkey (with softkey control) or menu options **Functions** → **New**, or the toolbar icon, open the dialog window for entering a new data record in the list of jobs. If a data record is already displayed, all fields are emptied for you to input the new record. The list fields are also reset to their defaults.

When you have entered the new data, you can transfer them to the database by clicking on the **Accept** softkey.

---

### Note

When you transfer a new data record, the values from the main message and announcement fields and the maintenance time setting are transferred to the corresponding fields of the manufacturer's specification.

---


### Note

Please do not use the inverted comma (‘), comma (,) or semicolon (;) characters in the newly created job.

---

## Copy function

If you want to create a new data record that is similar or identical to an existing record, you can use the **Copy** softkey (with softkey control) or

select menu options **Functions** → **Copy**, or the toolbar icon , to copy the original data record as a template for the new one.

---

### Note

You can edit the copied data record, even if the original one has been write-protected by the manufacturer.

---

When you have entered the new data, you can transfer them to the database by clicking on the **Accept** softkey.

---

### Note

When you transfer a new data record, the values from the main message and announcement fields and the maintenance time setting are transferred to the corresponding fields of the manufacturer's specification.

---

### Edit an existing data record

If the manufacturer has write-protected an import data record so that it cannot be edited, you will only be able to make changes in the following fields:

- **Value of announcement**
- **Unit of announcement**
- **Job time (scheduling)**
- **Job time unit (scheduling)**

If the manufacturer has released the record for editing (read/write record), all its contents can be changed.

After you have edited a record, you can transfer it to the database by clicking on the **Accept** softkey.


---

#### Note

The manufacturer's original specifications are always displayed. You can restore the manufacturer's settings for main message and announcement intervals and for the time required by clicking on the "**Accept Default**" checkboxes.

---

### Accept data

When you click on softkey **Accept** (with softkey control variant), or select menu options **Functions** → **Accept** or the toolbar icon , the new or edited data record is transferred to the database.

---

#### Note

A prompt is displayed asking whether you want to save the record to the database or discard your changes.

---



Fig. 3-9 Dialog: Save jobs

---

### Notice

If the illegal characters inverted comma (') , comma (,) or semicolon (;) have been used in the new job, the error message "Improper Signs" is displayed. Please delete these characters.

---



Fig. 3-10 Improper signs

### Return function

The **Return** softkey enables you to return to the list of current activities.

### Delete function



You can use the **Delete** softkey (with softkey control) or menu options **Functions** → **Delete**, or the toolbar icon  to delete the data record displayed in the detail screen. When you select the softkey, a dialog appears.



Fig. 3-11 Dialog: Delete action

You can delete a maintenance data record on two different levels:

- **Complete deletion of all data** (button: Delete action with history!)  
The action data are deleted from both the current list of activities as well as the list of completed activities. The delete operation is recorded in a log file (*FileName.LOG*).
- **Deletion of data from list of current activities** (button: Delete action without history!)  
The data are deleted from the list of current activities only. For the purposes of a history, they remain stored in the list of completed activities, i.e. the job is merely deactivated.  
As a result, you can still view the data details by selecting the **Detail Screen** softkey (with software control), or menu options **View** → **Details**, or toolbar icon .

---

**Note**



You cannot delete data records that are write-protected by the manufacturer.

The data are deleted immediately, i.e. you don't need to select the **Accept** softkey.

---

## 3.5.2 Operating instructions

### General

When you click on softkey **Operating Instructions** (with softkey control), or select menu options **View** → **Operating Instructions**, or toolbar icon  or , the Adobe Acrobat Reader is started and the maintenance manual excerpt for the selected job or job displayed in the Detail screen is output. You can return to one of the activity lists or the Detail screen by clicking on the **Return** softkey (softkey control only).

Each extract from the maintenance manual is a separate PDF file or it is a complete document in which you can jump to specific pages by entering a page number.

### Content

An extract from a maintenance manual explaining how to clean and inspect a pressure release valve is shown below.

---

**Note**

The name of the PDF file created or supplied by the manufacturer for a specific job is stored in the **Detail Info Reference** field (*FileName.pdf*) in the **Reference** box of the **Detail Screen**.

If the manual is a complete document in which you need to reference information by specifying page numbers, then you must enter the file reference as follows:  
*FileName.pdf#PageNumber*

---

**Example:**

**Maintenance Instructions**

---

**4 Pressure relief valve**

**4.1 Clean / remove chippings**

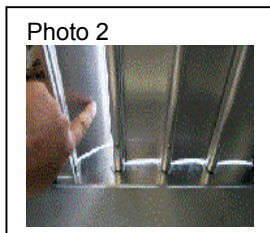


**Information**

*If a flareback occurs, chippings may ignite and increase the risk of a fire spreading. Chippings with a high magnesium content are especially dangerous as these burn at a particularly high temperature.*

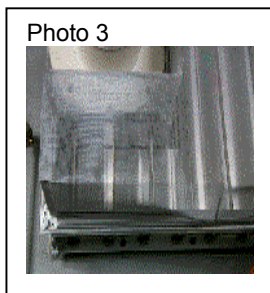
1. Remove the flame cage (Photo 3) for cleaning
2. Thoroughly clean the enclosure, the top and bottoms of the ribs, the rib supports and the area (top cover) around the pressure relief valve. Remove all chippings, taking care not to damage the ribs.
3. Check the function of each individual rib after cleaning.

**4.2 Check function of the ribs**



1. Lift each rib with your finger and watch how it closes.  
Each rib must close again immediately under its own weight.
2. If it does not close like this, you must find out why and correct the problem.

**4.3 Check the flame cage**



**Information**

*A basket (flame cage) made of wire meshing inhibits the flareback caused by an explosion in the machine tool. If the flame cage is damaged, the flareback can spread unhindered*




1. Check the flame cage for:
  - Damage
  - Loose mounting
  - Chip deposits
  - Dirt deposits
2. Clean the cage and replace immediately if damaged.

### 3.5.3 Acknowledge

Fig. 3-12 Acknowledge or confirm messages

---

#### Note


The TPM Lights switch to red  for main messages and to amber  for announcements. The lights do not switch to green  again until all messages have been acknowledged. Each message must be acknowledged separately.

---

#### Acknowledge message

If the message is a main message with a red background in the activity list, the user can acknowledge the message once the maintenance activity is performed. That requires entry of an operator (at least 1 character; e.g. initials or phone number) in the **Person** field. In the "**Effort**" (minutes) input field, the operator can enter the time actually needed.

When the job is acknowledged, the selected record will be transferred from the current activities list to the completed activities lists. With a main message, this starts the next activity interval. You return to the current activity list.

The TPM Lights change to green if no other messages are active . The entry is deleted from the list of current activities. It is transferred to the list of completed activities without color change.

## Cancel

You return to the current activity list.  
The message is not acknowledged.

## Confirm an announcement


If the message is an announcement with amber background in the current activity list, you can acknowledge it in two different ways.

1. You can carry out the maintenance job straight away and then acknowledge the warning.

---

See also section: Current activities

You can confirm the announcement. This indicates that you have taken note of it. You have not carried out the maintenance work, but may have informed the maintenance personnel responsible. The TPM Lights change to green if no other

messages are active . The amber color change is reset.




---

### Warning

The system does not check whether maintenance jobs have actually been carried out. When a user enters his name to acknowledge the message, he must take responsibility for its completion.

---

### 3.5.4 Accept

When you click on softkey **Accept** (with softkey control variant), or select menu options **Functions** → **Accept** or the toolbar icon , the new or edited data are transferred to the database. The changes are not actually implemented in the database until you click on the **Accept** softkey. The acceptance of data is relevant in the following definition or parameterization screens.

Acceptance of a new or edited activity data record from Details screen.

---

See also section: Details

- Acceptance of a newly defined or edited filter definition from filter definition list

---

See also section: Filter

- Acceptance of new or edited system parameters





# 4

## 4 TPM Setup

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## 4.1 Introduction

The sole purpose of the **TPM Setup** routine is to install or uninstall the TPM system to/from a **client** or **single-user computer**. Setup offers the following functions:

- Installation of TPM software
- Uninstallation of TPM software

TPM can operate only if the following programs are already installed:

Service Pack 6 for Windows NT 4.0

- Internet Explorer (IE), version 5.0 or later
- MDAC (OLE DB), version 2.5 or later

These programs (exception: Service Pack 6 because this package varies according to the operating system version!) are contained on the installation CD and will be installed automatically if required.

These software packages are pre-installed on a PCU 50. The setup sequence described below applies to a PCU 50. The sequence on a PC may differ depending on whether additional programs need to be loaded.

The following programs are automatically loaded (if they are not already installed) as part of the setup process:

- Acrobat Reader version 4.05
- MSDE 2000

These programs are contained on the installation CD and automatically loaded with the TPM software.

---

### Note

A PCU 50 must be set to service mode before the setup routine is started! If the system needs to be restarted while setup is running, the PCU 50 will start automatically in service mode.

---

## 4.2 Installation

### 4.2.1 Specify a language

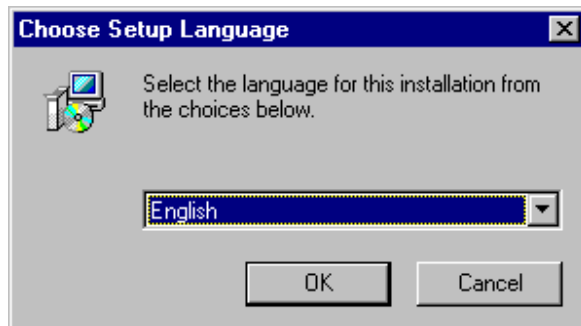


Fig. 4-1 Specifying a language for installation

Before you install or uninstall the TPM package, you can specify the language for installing or uninstalling the software. You can choose one of the following languages:

- German
- English

### 4.2.2 Installshield Wizard

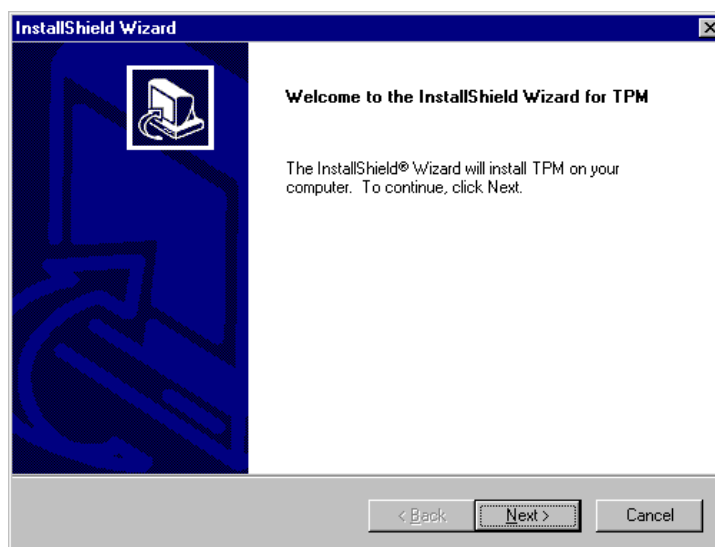


Fig. 4-2 Welcome to Installshield Wizard screen

The installation process described below is required if no version of TPM has yet been installed on the installation computer.

### 4.2.3 License agreement

Before you can start installing the software, you must accept the general license conditions displayed in the next screen.

### 4.2.4 Enter the product key

The product key for the TPM version you have purchased can be found on the "Certificate of License". Enter this correctly so that you can continue the setup process.

### 4.2.5 Specify the TPM installation path

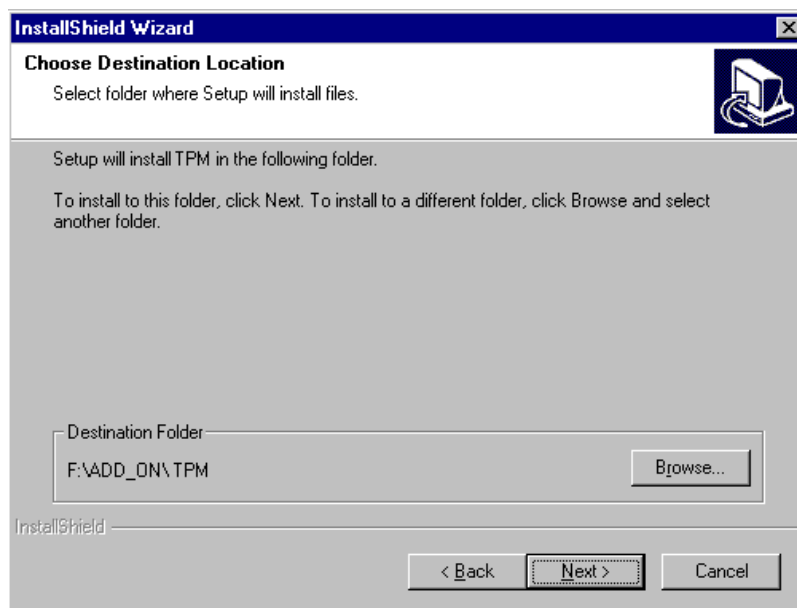


Fig. 4-3 Installation path for TPM

The default installation directory for TPM is

- f:\add\_on\tpm for PCU 50/PCU 70,
- C:\Siemens\MCIS\TPM for PC.

---

#### Note

You can select your own installation directory by clicking on the **Browse** button. We recommend that you accept the default directory for the PCU 50.

---

### 4.2.6 What to do if a database already exists

If a local database already exists, a dialog is displayed which allows you to integrate the database in TPM. If you do not integrate the existing database, setup will be aborted!

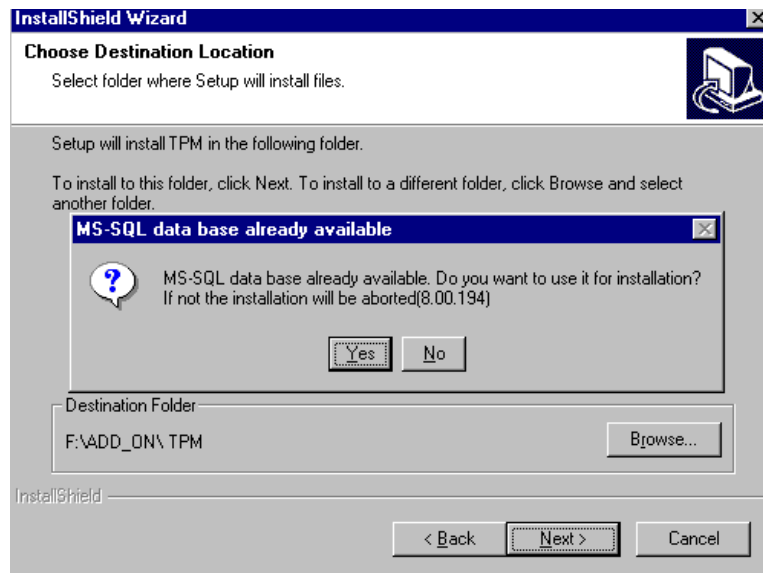


Fig. 4-4 Setup dialog when local TPM database already exists

### Installation information

Before you commence the installation, the screen below shows which components are already installed.

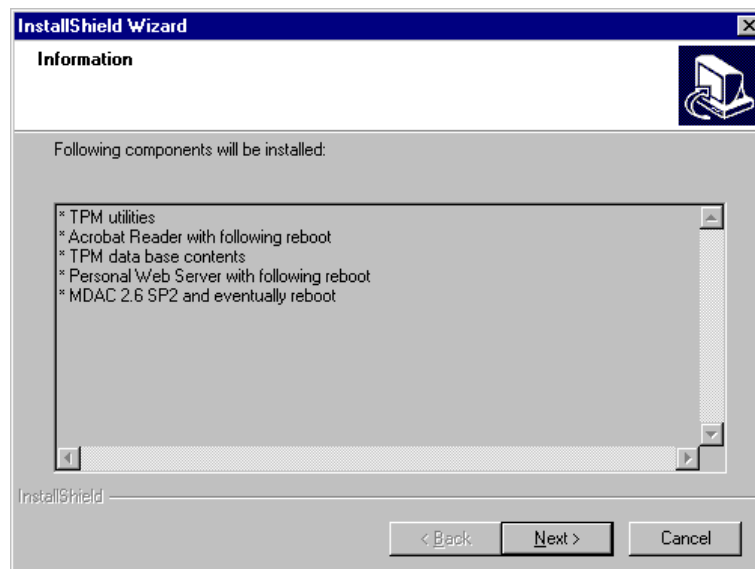


Fig. 4-5 Setup information

### 4.2.7 Installation of Acrobat Reader

Acrobat Reader version 4.05 is the software used to display help files. If it is not already installed on your system, it will be loaded now automatically.

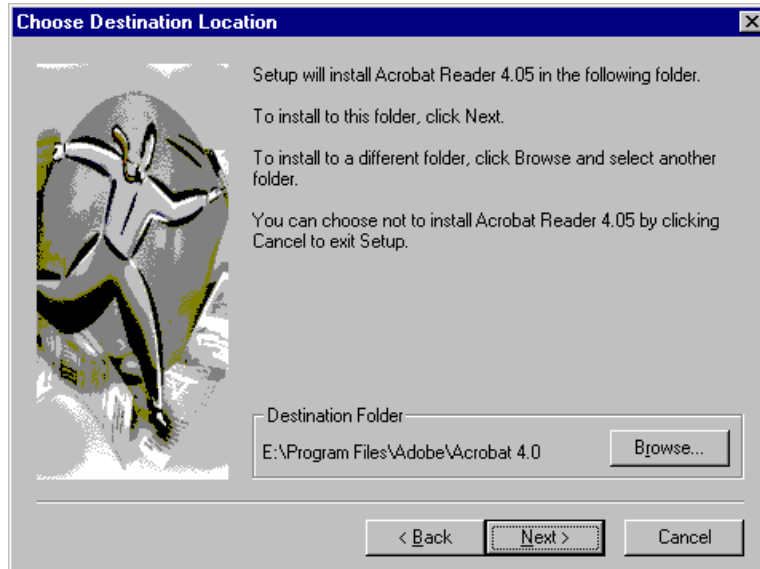


Fig. 4-6 Installation of Acrobat Reader

Please follow the instructions displayed by the Acrobat Reader setup.

### 4.2.8 Select the softkey (OP only)



Fig. 4-7 Softkey selection

There are two methods by which you can assign softkeys for TPM on an OP: Automatically or manually. If you decide to choose the manual method, you will be prompted in the next input screen to enter the softkey number. The available softkey number detected and recommended by the system is displayed. You can overwrite this number if you wish:

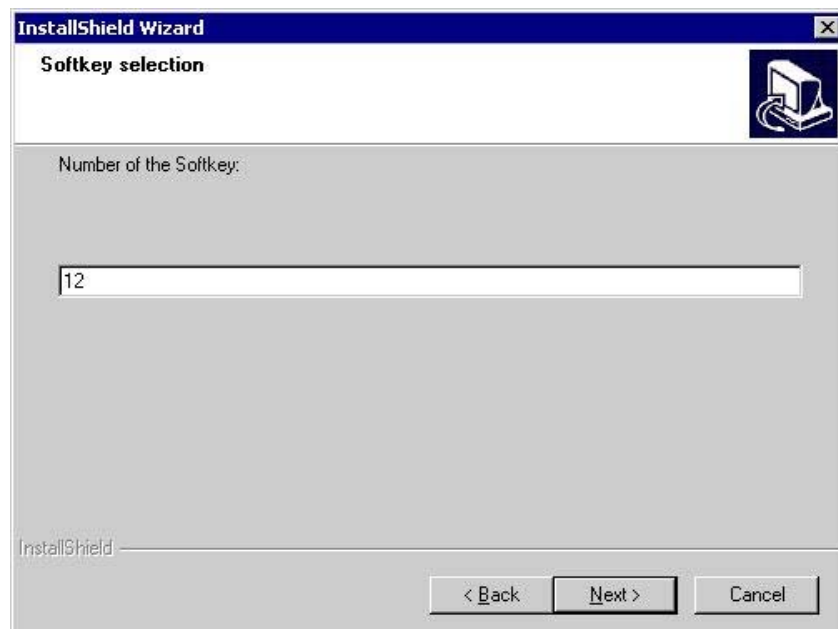


Fig. 4-8 Softkey selection: Manual input of softkey number

### 4.2.9 Finish TPM installation

Once Acrobat Reader has been installed, the actual TPM setup continues. If the following screen appears, you must click on the **Finish** button to complete TPM setup.

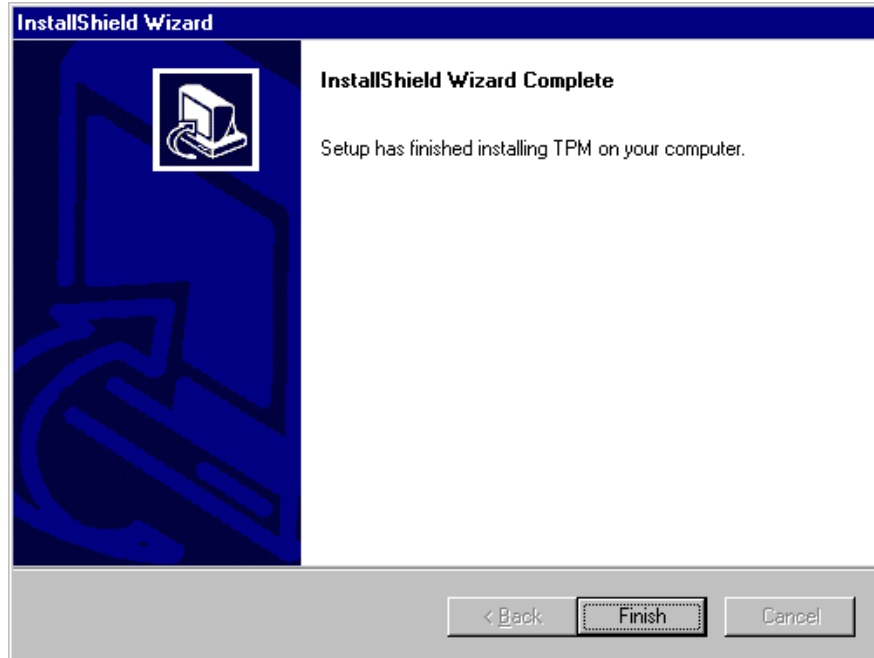


Fig. 4-9 Finish TPM installation

### 4.2.10 MSDE installation

Once TPM setup is complete, MSDE setup (database program for TPM) will be started automatically if necessary. MSDE setup takes several minutes (the Time Remaining period is not accurate).

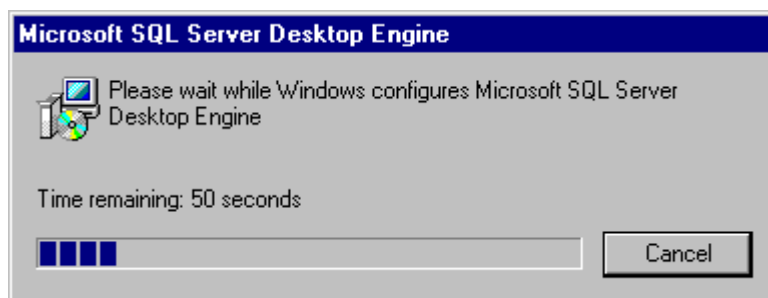


Fig. 4-10 MSDE setup

When MSDE setup is completed, you must click on the **Yes** button to restart your computer.





Fig. 4-11 Finish MSDE setup

Once you have rebooted the system (automatically in service mode on a PCU 50), the setup process continues, i.e. the TPM database is set up and filled with the appropriate start data.

---

#### Note

A system administrator account is required to set up the database. This is set up automatically when the TPM software is installed for the first time. If an MSDE database already existed on the computer, you will be requested to enter the currently valid password. In this case, you might need to contact the responsible system administrator.

The system administrator password allocated by TPM can be obtained from the Hotline if required.

---

#### 4.2.11 Use of the XML interface

If you intend to use the XML interface, you will also need to install a web server. Choose the appropriate web server for the operating system installed on the computer (e.g. Personal Web Server for Windows NT, IIS for Windows 2000 and XP). For further information, refer to the README.TXT file on the installation CD.

## 4.3 Uninstallation of TPM

If you want to completely remove the TPM software from your computer, you must use the software installation routine.

### Note

When TPM is uninstalled, no data are deleted from the MCIS database as this might still contain information from other MCIS products. If it does not contain information you want to save, you must delete the MSDE database manually.

### 4.3.1 Start uninstallation process

To start the uninstallation process, click on the Add/Remove Programs icon in the Control Panel window. Select the item TPM from the displayed list of software and click on button **Add/Remove**:

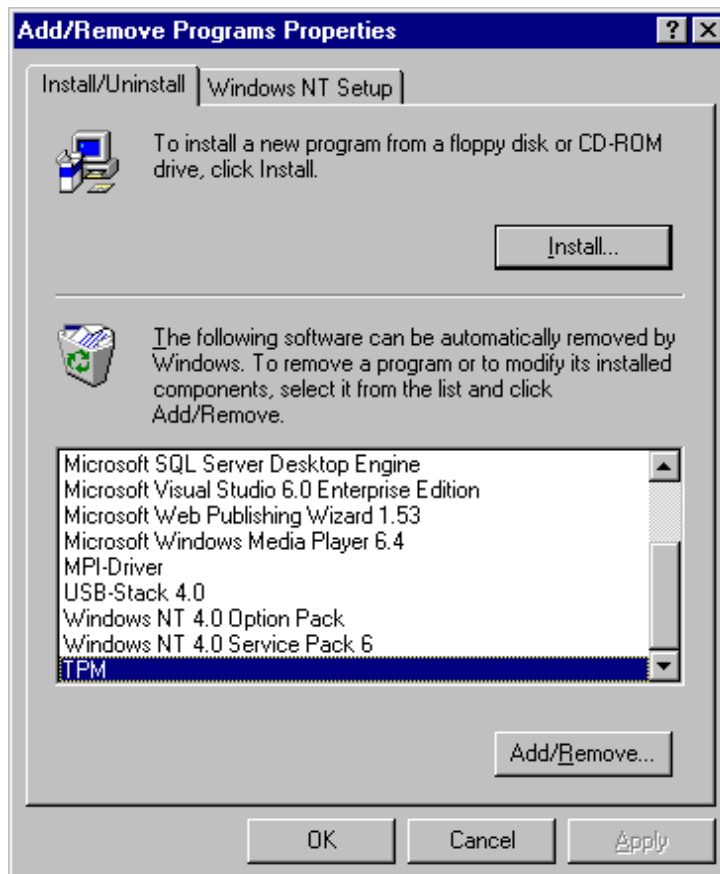


Fig. 4-12 Call the uninstallation routine in Control Panel window

Before you remove the software, you must specify an uninstallation language:



Fig. 4-13 Specify language for uninstalling software

### 4.3.2 Confirm uninstallation

You will then be prompted to confirm that you wish to remove the software. If you confirm positively, the TPM directory (including all programs), the TPM database and all registry entries made by TPM will be deleted.

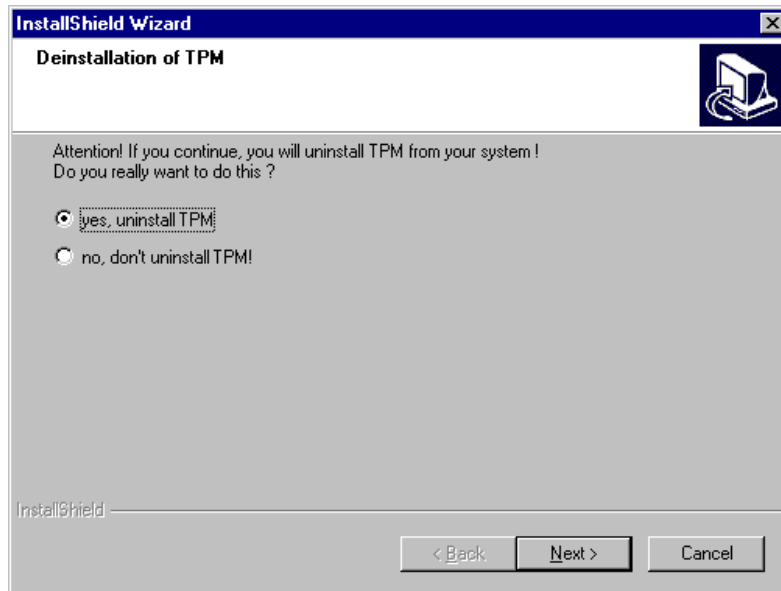


Fig. 4-14 Confirmation of uninstallation

The MSDE database and Personal Web Server (if installed) will not be deleted as they are applications which might be used by other programs. If you wish to remove these components as well, you must proceed as described above (using Add/Remove option in Control Panel window).

---

#### Note

A message will be displayed warning you that files used by other applications will be deleted when TPM is uninstalled. You then have the option of specifying that these files must not be deleted.

---



# 5

## 5 TPM Configuration Program

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## 5.1 Introduction



TPM is configured by means of a dedicated configuration program. It is called TPMCfg.EXE and can be found on the Windows desktop (icon displayed on left). You will only be able to start this program on an OP if you have started the OP in service mode beforehand.

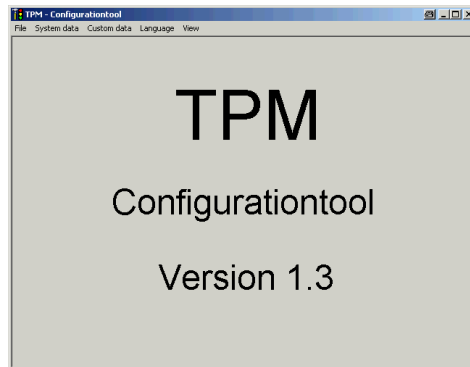


Fig. 5-1 Main screen of configuration program

This program can be used to perform the following activities:

- Configure system parameters
- Import system data
- Back up database
- Restore database
- Add further languages
- Import custom data.

## 5.2 Login

The following login window appears when you start the configuration program:

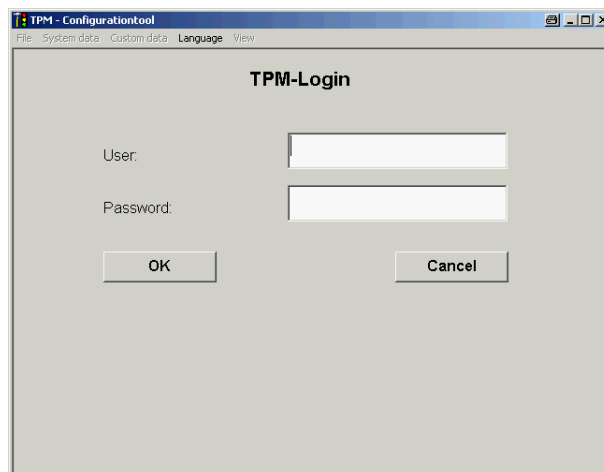


Fig. 5-2 Login window of configuration program

The main screen will open when you enter a valid user ID and password.

---

**Note**

When the TPM package is installed, a user "TPM" with the password "TPM" is set up automatically. To prevent unauthorized persons from calling or using the configuration program, you should change the password as soon as possible (see paragraph: User Administration below).

---

## 5.3 Show help

This document is displayed in PDF format when you select menu options **File** → **Help**.

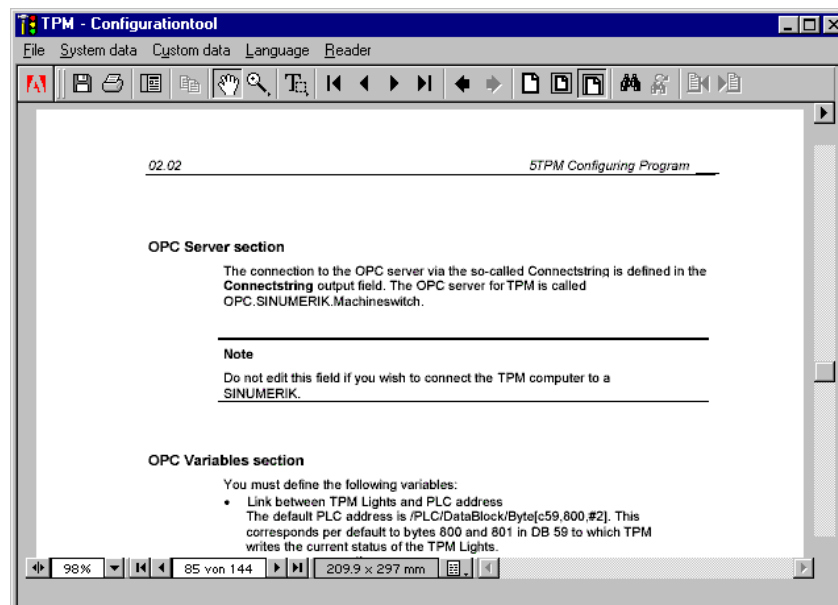


Fig. 5-3 Help window for configuration program

## 5.4 Configure system parameters

You can configure the following system parameters by selecting menu options **System Data** → **Configuration**.

### General

The **System Parameters** screen administers all the global settings which can be parameterized by the user. The screen contains four tabs:

- **Initial Settings**
- **Database**
- **Control**
- **Service Group**

### Contents

You can enter settings to configure the following functions or conditions:

- **Initial Settings**
  - Start Screen
  - Basic graphics path for the plant diagram (PDF) and the online help (PDF)
  - File name of online help (PDF)
  - File name of plant diagram (PDF)
  - Basic path (and file name) for the export file (CSV)
- **Database**
  - Backup cycle
  - Number of backup copies
  - Basic path for backup copies
  - Basic path (and file name without extension) for the log file (LOG)
- **Control**
  - Connection string for the OPC server
  - OPC variables for linking the traffic lights image
  - Symbolic OPC variable name for times/cycles
  - Variable parameter settings for interval type
- **Service group**
  - Service group = list of persons responsible for carrying out maintenance activities
- **User administration**
  - Set up, delete and change users



## Initial setting tab

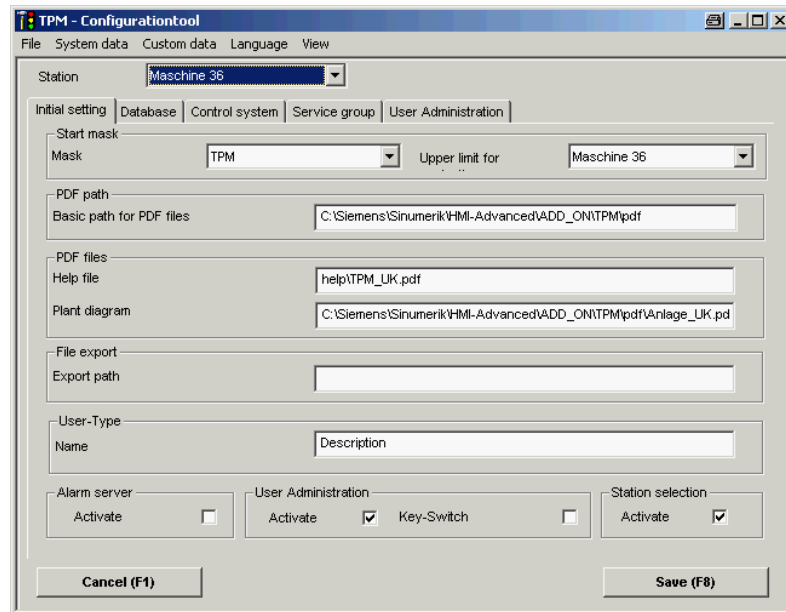


Fig. 5-4 Configuration of system parameters: Initial setting

### Select a station

All the following settings apply to the station selected in this box.

### Start mask section

In the **Start mask** section of the **Initial setting** tab, you can select one of the TPM function screens as the start screen from the **Mask** drop-down list:

- Current Activities
- Plant diagram
- Operating instructions
- Detail screen
- Completed activities
- Help
- System parameters
- TPM (TPM overview)

The screen you select will appear first when you next start the application.

---

#### Note

To transfer your settings to the database, you must then click on the **Save** softkey (or F8 with the PC version) or the 8th horizontal softkey (OP version).

---



---

### Warning

The settings you enter on all tab cards in the **System Parameters** screen become valid simultaneously when you click on Accept. Even if you abort a detailed dialog (e.g. delete interval type), all the other settings will be accepted!

---

---

### Note

UNC notation (e.g.: \\MYCOMPUTER \ MYDIRECTORY) must never be used to specify path information!

---

## Upper Navigation Limit

When TPM is linked to a central database, you can specify in this field which stations may be displayed. To do this, select a station from the combo box.

## PDF Files section

The basic path for all PDF files is defined in the **Basic Path for PDF Files** box in the **PDF Files** section. The file names of the online help and plant diagram to be utilized in TPM are specified in the boxes **Help File** and **Plant Diagram**. The file name must end in extension .PDF.

---

### Note

If you want to enter different paths for the online help and plant diagram, you are allowed to specify a directory in front of the file name.

#### Example:

Basic Path for PDF Files: **F:ADD\_ON\TPM\PDF\  
Plant diagram: **Bitmaps\Plant\_WH12.pdf  
Help file: **OnlineHelp\TPM.pdf******

---

### Note

The directory and file name of the **instructions** (extracts from maintenance manuals which describe maintenance procedures) are defined in the appropriate **Detail screen** in the **Detailed Info Ref.** box.

#### Example:

Basic Path for PDF Files: **F:ADD\_ON\TPM\PDF\  
Detailed Info Ref. in Detail screen:  
**OperatingInstructions\Insth.pdf****

---

## Export File section

The basic path of the export file is defined in the **File Export** section. This field must contain only the export path or the export path and the file name of the export file.

Example:

Export Path: F:\ADD\_ON\TPM\EXPORT\Compl\_Activ\_JM\_bef\_Message

### Notice

You must enter an export path.

If the parameterized directory contains a directory with the same name as the export file (without extension), the file name is interpreted to be a directory. In this case, a file cannot be exported because no file name has been defined.

### Note

You must add the export file extension. You can open an export file with extension **CSV** as an Excel table and therefore handle the columns in the activities lists as columns in an Excel table.

To do this, follow the sequence below to open the file in Excel:

- Select menu options **File** → **Open** in Excel
- Select file type **.csv**
- Select the export file under the defined export path
- Call the file by clicking on button **Open**

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Cleaning	Chip remover	BAZ12 / R201 / B12 / Werk 07	Cleaning of pressure release falp	-12 Min	Prod	TPM	10/27/2004 09:31	no special things happening	5	WXP		
2	Cleaning	Operator panel	BAZ12 / R201 / B12 / Werk 07	Cleaning activity	-6.3 Day	Prod	TPM	10/27/2004 08:55	ok	20	WXP		
3	Cleaning	Chip remover	BAZ12 / R201 / B12 / Werk 07	Cleaning of pressure release falp	-1.3 We	Prod	TPM	10/27/2004 08:55	ok	20	WXP		
4	Inspection	Chip remover	BAZ12 / R201 / B12 / Werk 07	Check lamellaes	-6.3 Day	Prod	TPM	10/27/2004 08:55	ok	20	WXP		
5	Inspection	Operator panel	BAZ12 / R201 / B12 / Werk 07	Inspection activity	-6.0 Day	Prod	TPM	10/27/2004 08:55	ok	20	WXP		
6	Maintenance	Operator panel	BAZ12 / R201 / B12 / Werk 07	Maintenance activity	-6.4 Day	Prod	TPM	10/27/2004 08:55	ok	20	WXP		
7	Service	Operator panel	BAZ12 / R201 / B12 / Werk 07	Repair activity	-6.6 Day	Prod	TPM	10/27/2004 08:55	ok	20	WXP		
8	Cleaning	Operator panel	BAZ12 / R201 / B12 / Werk 07	Cleaning activity	-2.0 Day	Prod	Smith	10/20/2004 18:15	No Problems !	20	WXP		
9	Inspection	Chip remover	BAZ12 / R201 / B12 / Werk 07	Check lamellaes	-2.0 Day	Prod	Smith	10/20/2004 18:15	No Problems !	20	WXP		
10	Inspection	Operator panel	BAZ12 / R201 / B12 / Werk 07	Inspection activity	-1.7 Day	Prod	Smith	10/20/2004 18:15	No Problems !	20	WXP		
11	Maintenance	Operator panel	BAZ12 / R201 / B12 / Werk 07	Maintenance activity	-2.2 Day	Prod	Smith	10/20/2004 18:15	No Problems !	20	WXP		
12	Service	Operator panel	BAZ12 / R201 / B12 / Werk 07	Repair activity	-2.3 Day	Prod	Smith	10/20/2004 18:15	No Problems !	20	WXP		
13													
14													
15													

Fig. 5-5 Export file

See also section: Retro-install another language for TPM (system data)

## Alarm Server section

When you check the **Activate** box, an alarm with number 420000 is triggered at the same time as a main message is generated. If you acknowledge this main message in TPM (green traffic light), the alarm is reset again. (This function is not available when TPM is installed on a PC).

## User Type section

In this section you can define a new type. The activity associated with this type never needs to be carried out. For example, this can be a useful setting for documentation.

---

**See also Chapter 3: Current and Completed Activities**

## User Administration section

If you want the user as well as his/her password to be verified when an activity is acknowledged, activate the user administration function by checking the appropriate box. Users are set up on the **User Administration** tab.

## Database tab

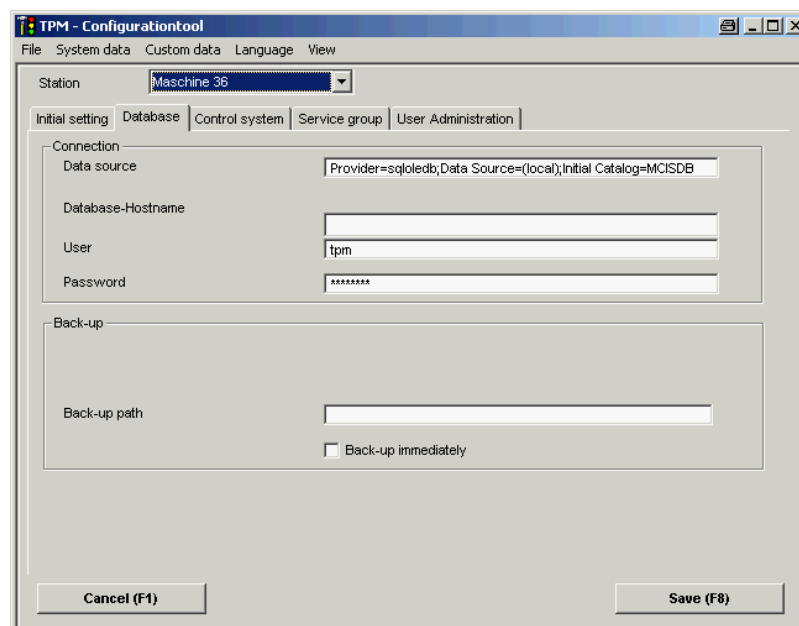


Fig. 5-6 Configuration of system parameters: Database

The **Database** tab contains the settings for backing up the TPM database and defines the file and path name (without extension) of the database log file.

---

### Note

Do not use any UNC (Universal Naming Convention) path names in the backup path for the TPM database. E.g. \\Rechnername\Sharename.

---

**Warning**

The settings you enter on all tab cards in the **System Parameters** screen become valid simultaneously when you click on Accept. Even if you abort a detailed dialog (e.g. delete interval type), all the other settings will be accepted!

---

**Link section**

The database host name, the data source, the user and his/her password are defined in the **Link** section. You should only change these values (after consultation with the network administrator if appropriate) if a central rather than the local database is to be accessed.

**Backup section**

The following parameter is defined in the **Backup** section:

- Backup path

---

**Note**

To transfer your settings to the database, you must then click on the **Save** softkey (or F8 with the PC version) or the 8th horizontal softkey (OP version).

---

**Warning**

The settings you enter on all tab cards in the **System Parameters** screen become valid simultaneously when you click on Accept. Even if you abort a detailed dialog (e.g. delete interval type), all the other settings will be accepted!

If you change the date to an earlier date, you must reparameterize the setting and transfer it to the database (**Save** button or F8 key with PC version or 8th horizontal softkey with OP version) in the **Backup** section to ensure that the backup cycle functions correctly.

---

## Backup Path

The backup file of the MSDE or the MS SQL server must be specified in the **backup path** input field. The backup file is named: TPM\_Date\_Time. The date and time fields are displayed without separators. The date format is as follows: YYMMDD; the time format is as follows: HHmmss.

Example of a backup file created on 28.11.2001 at 14:03:04:  
TPM\_20011128\_140340

To back up files externally to the TPM computer, you can also define a basic backup path on a networked drive.

---

### Note

If TPM is operating with a central database, the administrator of the central database is responsible for the data backup operation!

---



---

### Warning

If backup data are stored locally, the local user is responsible for ensuring that data are archived in such a way that they can be accessed in an emergency!

---

---

### Note

Data are reintegrated into TPM by an administrator using the TPM setup routine.

---

## Back Up Immediately checkbox

If the **Back Up Immediately** box is checked, a database backup file of the current database contents is created when you click on the **Save** button.

---

### Note

The backup file created via the **Back Up Immediately** checkbox is called TPM\_Manuell. The normal backup cycle is not affected by the creation of an immediate backup copy.

---

## Control tab

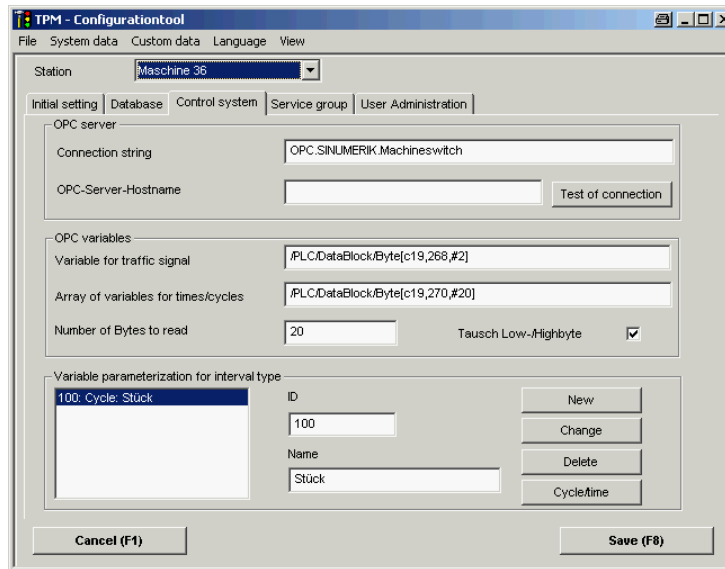


Fig. 5-7 Configuration of system parameters: Control

The **Control system** tab defines the interface between the TPM computer and the connected control system. These settings define the links between clients and their controls for TPM.

---

### Note

To transfer your settings to the database, you must then click on the **Save** softkey (or F8 with the PC version) or the 8th horizontal softkey (OP version).

---



### Warning

The settings you enter on all tab cards in the **System Parameters** screen become valid simultaneously when you click on Accept. Even if you abort a detailed dialog (e.g. delete interval type), all the other settings will be accepted!

---

## OPC Server section

The connection to the OPC server by the so-called Connectstring is defined in the **Connection string** field. The OPC server for TPM is called: OPC.SINUMERIK.Machineswitch.

---

### Note

The field setting should not be changed if the computer is connected to a SINUMERIK control.

---

## OPC Variables section

You must define the following variables:

- Link between traffic lights image and PLC address  
The default PLC address is /PLC/DataBlock/Byte[c19,268,#2]. This corresponds to bytes 268 and 269 in DB 19 to which the TPM writes the current status of the traffic lights.
- Symbolic name for times/cycles  
The default PLC address is /PLC/DataBlock/Byte[c19,270,#20]. This corresponds to bytes 270 to 289 in DB 19 to which the TPM writes the data for cycles and machine times.
- The number of bytes to be read in defines the number of bytes which are actually read in with every read cycle.

---

### Note

The variable length of the symbolic name for times or cycles is related to the variable setting for interval types.

4 bytes are required for each interval type.

Example:

With a variable length of 20 (#20) it is possible to define 5 interval types (5 \* 4=20).

---



---

### Warning

The parameterized size of area from which data must be read must actually be available on the control system!

---

## Variable Parameter Settings for Interval Type section

The variable parameter settings define the assignment between activity intervals and data areas in the control system. You can specify new activities directly in this section or integrate them by importing a .CSV file.

The variables are defined in the following way:

***Index:IntervalKind:IntervalType***

Example:

1:Cycle:Machine Cycle



### Parameterize new intervals

If you want to parameterize a new interval, you must select the word <new> in the list field at the bottom. This will enable the field for input of a new activity interval. After you have parameterized the interval, you can transfer it to the list field by clicking in the field with the cursor.

---

#### Note

To transfer your settings to the database, you must then click on the **Save** softkey (or F8 with the PC version) or the 8th horizontal softkey (OP version).

---

### Edit intervals

To edit an activity interval, select the name of the relevant interval in the list field at the bottom. The interval will then be transferred to the input field. After you have edited the interval, you can transfer it to the list field by clicking in the field with the cursor.

---

#### Note

To transfer your settings to the database, you must then click on the **Save** softkey (or F8 with the PC version) or the 8th horizontal softkey (OP version).

---



#### Warning

The settings you enter on all tab cards in the **System Parameters** screen become valid simultaneously when you click on **Save**. Even if you abort a detailed dialog (e.g. delete interval type), all the other settings will be accepted!

---

## Parameterize sequence of activity intervals

The index starts at 0. Index 0 defines the start address of the data area on the PLC. Each index of an activity interval occupies four bytes of the data area. The PLC data area for activity intervals is assigned contiguously.

---

### Note

You can implement jumps in the data area by inserting reserve entries.

---

The sequence of activity intervals can be altered as follows:  
Select the activity with the index you want to change in the list field. You can increment or decrement the index by clicking on the **Up** or **Down** button.

---

### Note

To transfer your settings to the database, you must then click on the **Save** softkey (or F8 with the PC version) or the 8th horizontal softkey (OP version).

---



---

### Warning

The settings you enter on all tab cards in the **System Parameters** screen become valid simultaneously when you click on **Save**. Even if you abort a detailed dialog (e.g. delete interval type), all the other settings will be accepted!

---

## Delete intervals

To delete an activity interval, select the name of the relevant interval in the list field at the bottom. You can clear the interval entry by clicking on the **Delete** button.

---

### Note

To transfer your settings to the database, you must then click on the **Save** softkey (or F8 with the PC version) or the 8th horizontal softkey (OP version).

---



---

### Warning

The settings you enter on all tab cards in the **System Parameters** screen become valid simultaneously when you click on **Save**. Even if you abort a detailed dialog (e.g. delete interval type), all the other settings will be accepted!

---

## Parameterize interval kind

You can select the following kinds of interval:

- Time
- Cycle

To edit an interval kind, select the name of the relevant interval in the list field at the bottom. Then click on the **Cycle / Time** button to change the entry.

---

### Note

To transfer your settings to the database, you must then click on the **Save** softkey (or F8 with the PC version) or the 8th horizontal softkey (OP version).

---




---

### Warning

The settings you enter on all tab cards in the **System Parameters** screen become valid simultaneously when you click on **Save**. Even if you abort a detailed dialog (e.g. delete interval type), all the other settings will be accepted!

---



---

### Caution

If you change a parameterized interval kind from cycle to time, the interval unit is converted as follows:  
X cycle → x minutes

If you change the interval kind from time to cycle, the interval unit is converted as follows:  
X months → 43200\*x cycles [43200=60 min\*24 h\*30 d]

---

If you reparameterize the interval kind from time to cycles, a warning will be displayed indicating how many activities will be affected by the change after you confirm that you want to save the new setting (Save system parameters?).



Fig. 5-8 Dialog: Save system parameters?

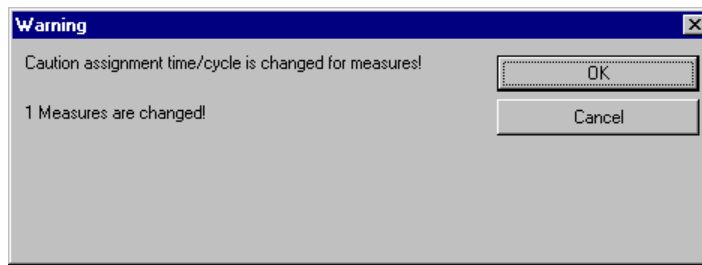


Fig. 5-9 Dialog: Change to activities warning



### Warning

Changing the interval kind from cycles to time or vice versa can have the following effects:  
'x cycles' changes to 'x minutes'.  
'x time units' changes to 'x cycles' (e.g. 10 months → 10 cycles).

## Service group tab

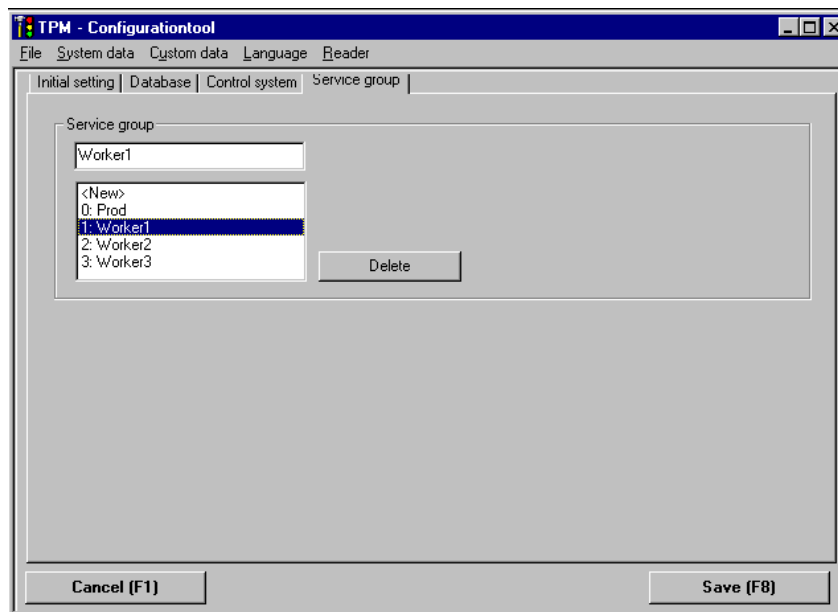


Fig. 5-10 Configuration of system parameters: Service group

The **Service group** tab card contains all the people authorized to perform maintenance work.

### Parameterize a new service group

If you want to parameterize a new service group, you must select the word <new> in the list field at the bottom. This will enable the field for input of a new service group. After you have parameterized the group, you can transfer it to the list field by clicking in the field with the cursor.

---

#### Note

To transfer your settings to the database, you must then click on the **Save** softkey (or F8 with the PC version) or the 8th horizontal softkey (OP version).

---



---

#### Warning

The settings you enter on all tab cards in the **System Parameters** screen become valid simultaneously when you click on **Save**. Even if you abort a detailed dialog (e.g. delete interval type), all the other settings will be accepted!

---

### Edit a service group

To edit a service group, select the name of the relevant group in the list field at the bottom. The interval will then be transferred to the input field. After you have edited the group, you can transfer it to the list field by clicking in the field with the cursor.

---

#### Note

To transfer your settings to the database, you must then click on the **Save** softkey (or F8 with the PC version) or the 8th horizontal softkey (OP version).

---



---

#### Warning

The settings you enter on all tab cards in the **System Parameters** screen become valid simultaneously when you click on **Save**. Even if you abort a detailed dialog (e.g. delete interval type), all the other settings will be accepted!

---

Before the data are transferred to the database, you will be prompted to confirm that you want to save them.



Fig. 5-11 Save system parameters

### Delete a service group

To delete a service group, select the name of the relevant group in the list field at the bottom. You can clear the interval entry by clicking on the **Delete** button.

---

#### Note

To transfer your settings to the database, you must then click on the **Save** softkey (or F8 with the PC version) or the 8th horizontal softkey (OP version).

---



---

#### Warning

The settings you enter on all tab cards in the **System Parameters** screen become valid simultaneously when you click on **Save**. Even if you abort a detailed dialog (e.g. delete interval type), all the other settings will be accepted!

---

A warning will be displayed if activity data records are affected by the deletion.

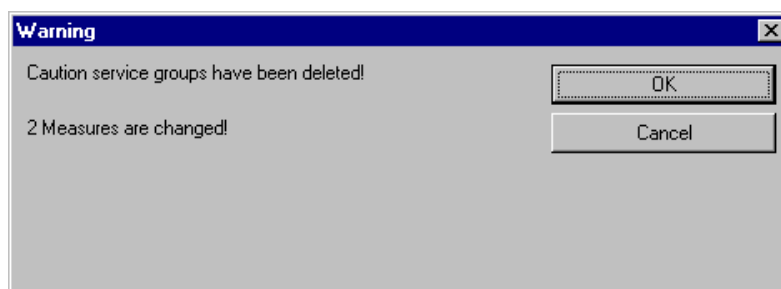


Fig. 5-12 Delete service groups

---

**Note**

If you delete the relevant service group despite the warning, the activity data records with the appropriate service group entry will be changed. The service group of the first activity in the current list of activities will be assigned to them.

---

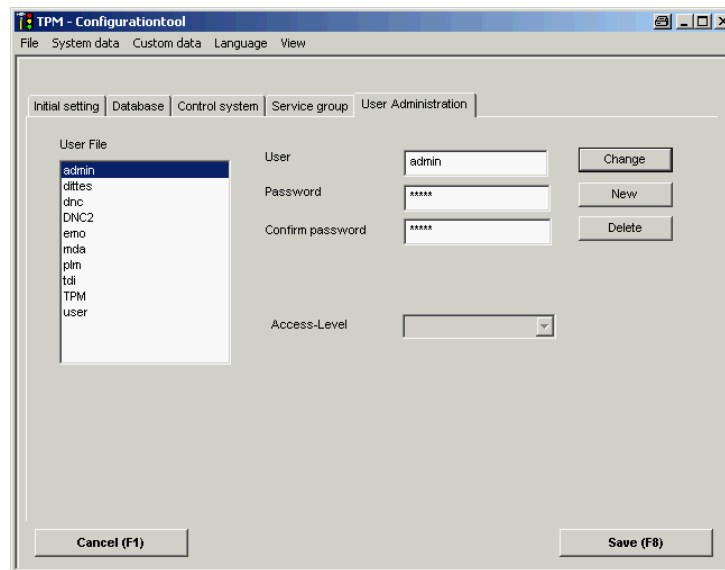
**User Administration tab**

Fig. 5-13 Configuration of system parameters: User administration

The **User Administration** tab card provides you with a dialog for creating/editing and deleting users who are authorized to acknowledge maintenance activities.

**Create a new user**

To create a new user, you must enter a new name in the **User** field, enter the user's password in the **Password** field and then confirm the password again. You confirm the new user by clicking on the **New** button.

---

**Note**

To transfer your settings to the database, you must then click on the **Save** softkey (or F8 with the PC version) or the 8th horizontal softkey (OP version).

---



---

### Warning

The settings you enter on all tab cards in the **System Parameters** screen become valid simultaneously when you click on **Save**. Even if you abort a detailed dialog (e.g. delete interval type), all the other settings will be accepted!

---

### Edit a user

To edit a user, click on the user name in the list field. You can then edit the user's data (name or password) in the relevant input fields. After you have edited the data, click on the Edit button to confirm your changes.

---

### Note

To transfer your settings to the database, you must then click on the **Save** softkey (or F8 with the PC version) or the 8th horizontal softkey (OP version).

---



---

### Warning

The settings you enter on all tab cards in the **System Parameters** screen become valid simultaneously when you click on **Save**. Even if you abort a detailed dialog (e.g. delete interval type), all the other settings will be accepted!

---

Before the data are transferred to the database, you will be prompted to confirm that you want to save them.



Fig. 5-14 Save system parameters



## Delete a user

To delete a user, click on the user name in the list field. You can remove the user by clicking on the **Delete** button.

---

### Note

To transfer your settings to the database, you must then click on the **Save** softkey (or F8 with the PC version) or the 8th horizontal softkey (OP version).

---



### Warning

The settings you enter on all tab cards in the **System Parameters** screen become valid simultaneously when you click on **Save**. Even if you abort a detailed dialog (e.g. delete interval type), all the other settings will be accepted!

---

A warning will be displayed if activity data records are affected by the deletion.

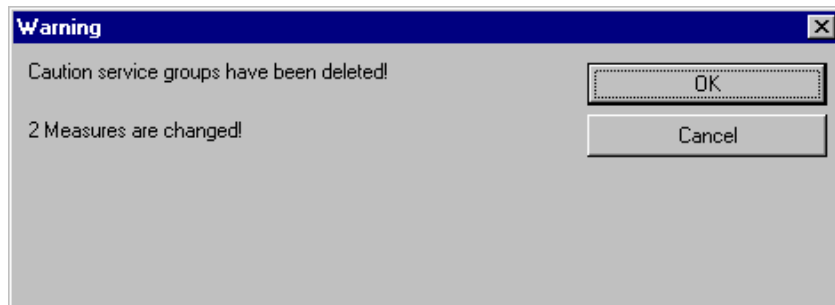


Fig. 5-15 Delete service groups

---

### Note

If you delete the relevant service group despite the warning, the activity data records with the appropriate service group entry will be changed. The service group of the first activity in the current list of activities will be assigned to them.

---

## 5.5 Update system data

You can load future updates by selecting menu options **System Data** → **Update System Data**. Updates are supplied as an executable file (\*.EXE). Select the source directory of the file in the next screen.

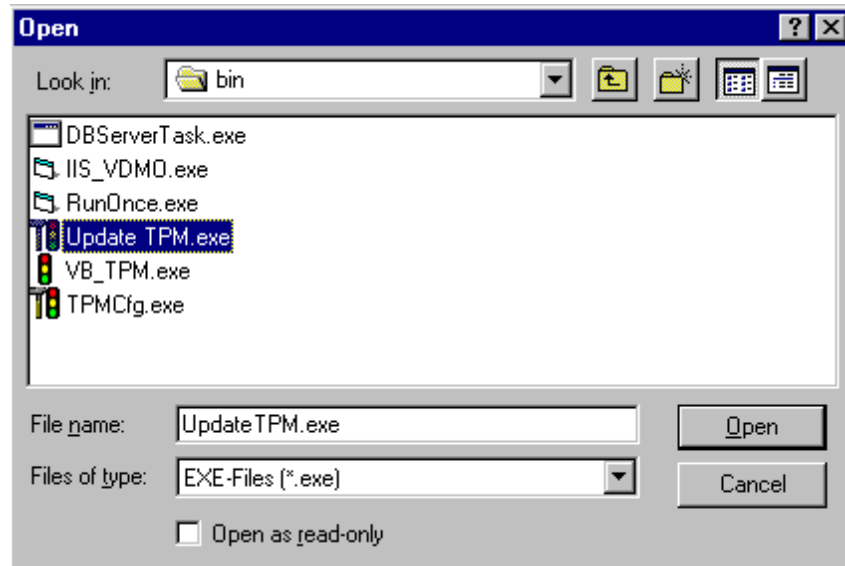


Fig. 5-16 Selection menu for system update file

The executable file is then started and the update installed.

## 5.6 Retro-install another language for TPM (system data)

When you retro-install a language for the system data, this is a language extension for TPM which is not one of the standard SINUMERIK languages (German, English, French, Italian and Spanish). The retro-install package comprises TPM system texts and help in the new language.

The package always comprises two files. The first file is the compiled SQL script (\*.EXE file) with the language content for the TPM system texts. The second file is the relevant help file for the language (\*.PDF file). The two files are always stored in the same source directory. You must first select the script file in the following screen:

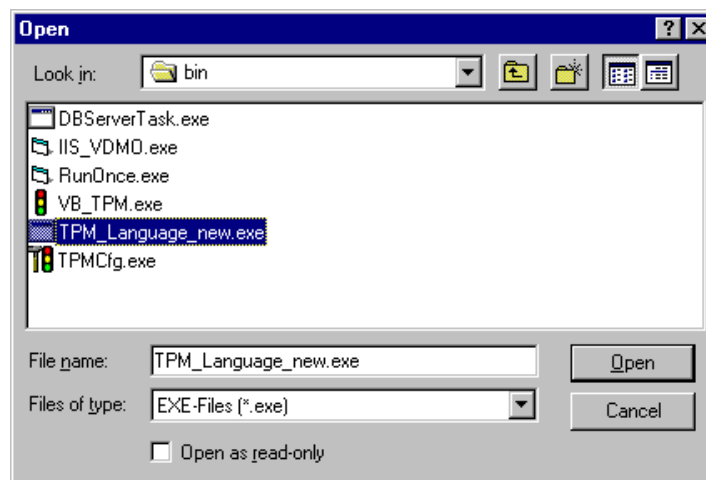


Fig. 5-17 Selection menu for new language file

Then select the help file in the screen below:

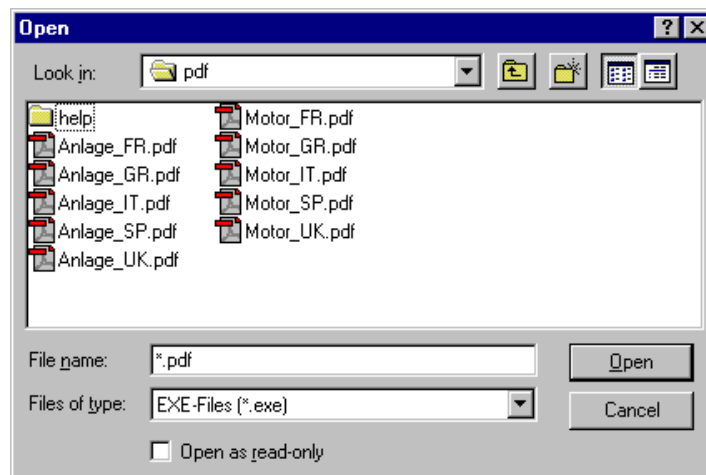


Fig. 5-18 Selection menu for new help file

The target directory for the help file is derived from the PDF basic path set in the system parameter configuration (**Initial setting** tab) plus subdirectory level HELP.

## 5.7 Restore a database

The database restore function is provided as an emergency measure for restoring an irreparably damaged TPM database. Data with the following format can be imported:

**TPM\_Date\_Time**

(Example: TPM\_001128\_1403409)

---

### Note

The database restore option can be used only when you want to restore a local database. If TPM is operating with a central database, the administrator of the central database is responsible for the data backup operation!

---

### Note

Before you can import a database backup, you must close all links to the database. You must exit TPM and all other programs which access the local database.

---

When you select menu options **System data** → **Restore Database**, the following screen appears:

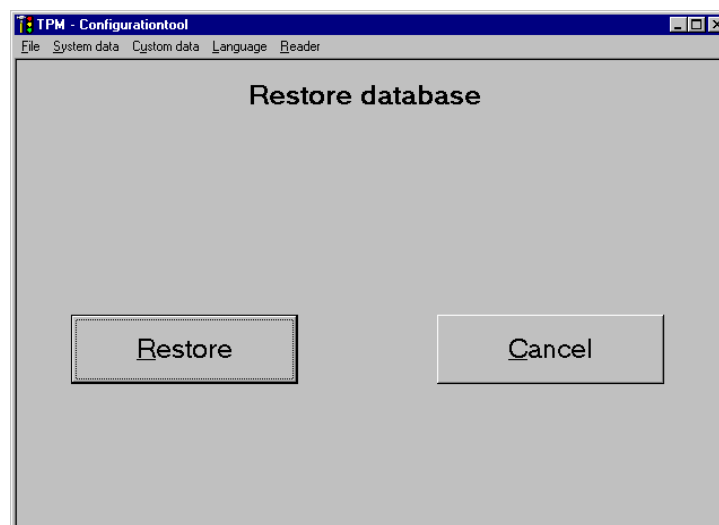


Fig. 5-19 Screen for restoring a database

### 5.7.1 Select a database backup

A file browser opens when you click on the **Restore** button. The selected path matches the database backup path defined in the **Backup** section of the **System Parameters** → **Database** tab card. All the files stored in this path are displayed for selection:

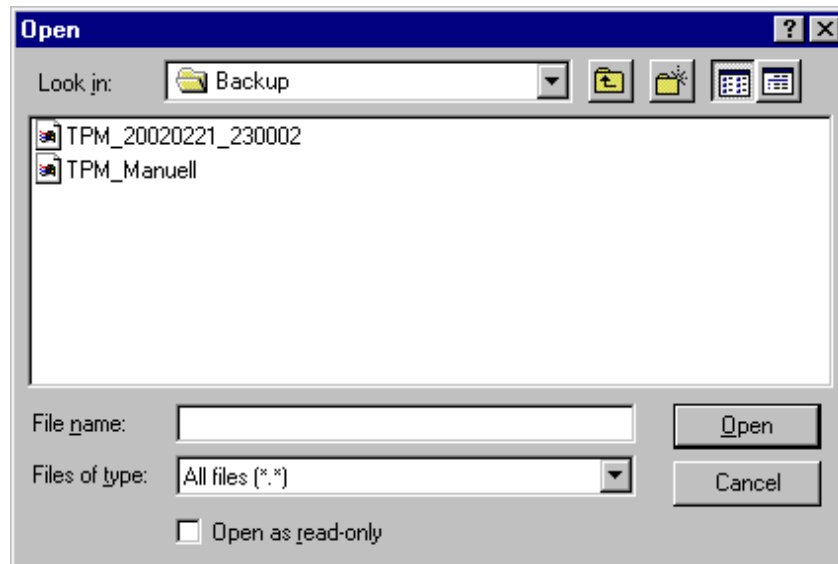


Fig. 5-20 File browser for restoring a database

A safety prompt appears before you import the backup copy. The restore operation will start only after you have responded to this prompt with **Yes**.

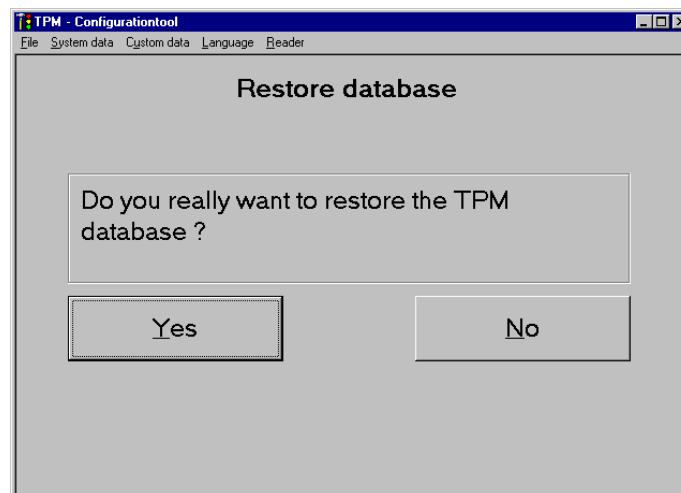


Fig. 5-21 Safety prompt before a database is restored



**Warning**

**The imported data version will match the version saved when the database was last backed up. Any changes made to the TPM database since the last backup was made will therefore be lost!**

If the database has been successfully restored, the following screen appears:

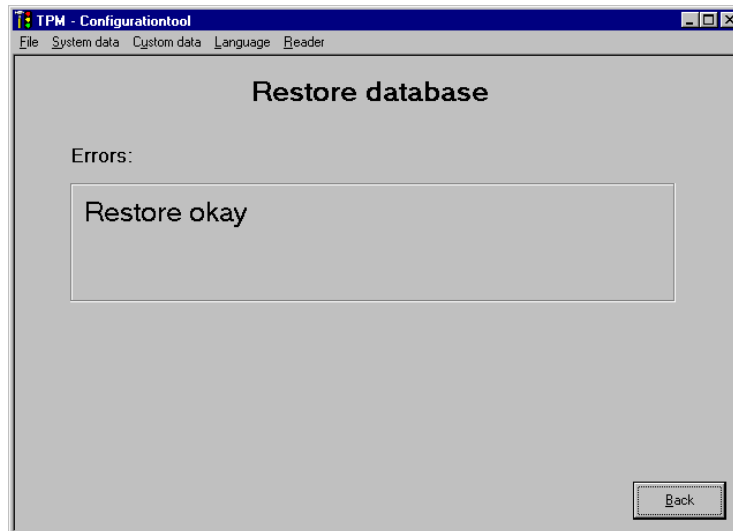


Fig. 5-22 Screen indicating successful database restoration

Click on the Back key to return to the main screen.

## 5.8 Rename a local station

When TPM is set up, the computer name is selected as the station name per default. If you do not want to keep the default setting, you can use this function to rename the local station.

When you select menu options "System data" "Rename local station", the following dialog is displayed:

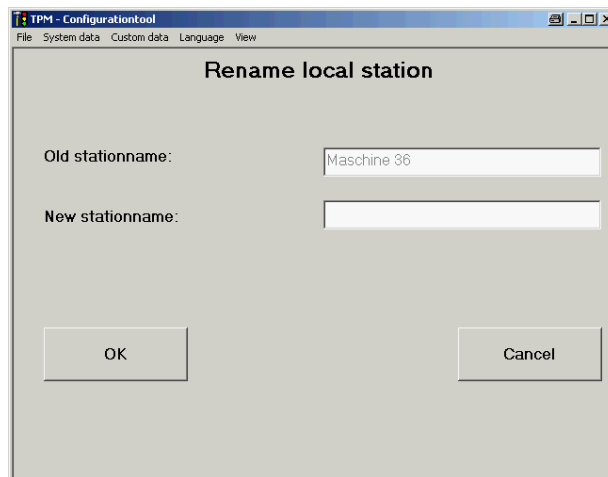


Fig. 5-23 Rename a station

When you confirm your choice with OK, the new station name is accepted and entered in the database. Since the database will accept only unique station names, the system checks whether the new name exists as a station name.

## 5.9 Import custom data

The retro-installation of custom data relates to manufacturer-specific data records for scheduled activities (including foreign languages). These custom data must be created in advance with the Excel tool supplied with the package.

You can import custom data by selecting menu options **Custom data** → **Import**:

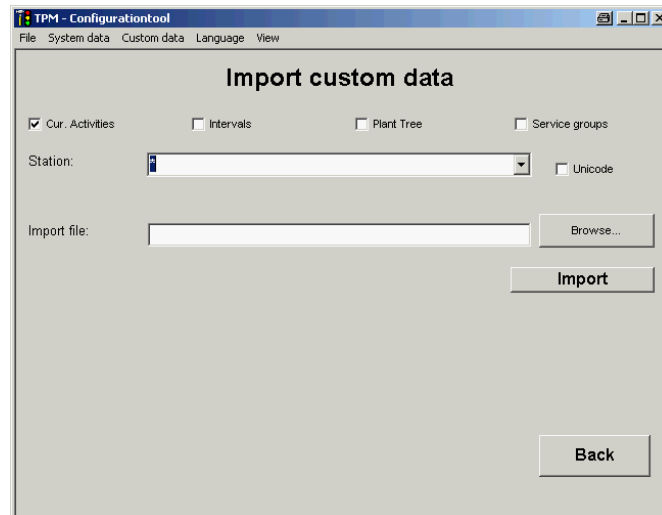


Fig. 5-24 Screen for importing custom data

---

### Note

If an \* symbol is entered in input field **Station** instead of the station's own name, data records are imported for all stations (these must already exist in the database). (Important for master controls.)

---

You can now proceed in one of the following ways:

You can click on the **Back** button to branch back to the main display (without importing data).

You can click on the **Browse...** button to open a file browser in which you can select the tpm file you want to import.

Once you have decided what you want to import from this file by checking the appropriate box (**Cur. Activities**, **Intervals**, **Plant Tree** or **Service groups**), these elements will be imported to the database when you click on the **Import** button.

The custom data are then imported. The success or failure of the import process is then displayed in an error list:



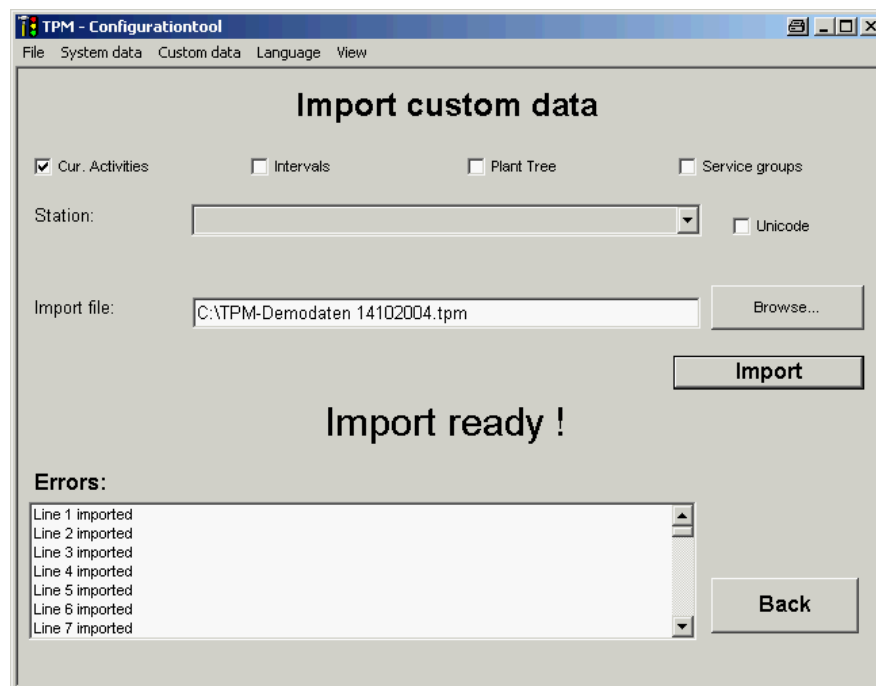


Fig. 5-25 Screen displaying a successful custom data import



### Warning

As tmp data are transferred to the database, they are checked for system data in the supplied language. If data in a language that is not supported in TPM are integrated, the import operation is aborted.

If the system is registered as a system language, the data are accepted. If the database already contains custom data in the same language and with the same index, the activity texts will be overwritten.

## 5.10 Export custom data

### 5.10.1 Export current activity data

#### Excel tool option

The custom data (**Current Activities**, **Intervals**, **Plant Tree** and **Service groups**) can be exported to a tpm file. This can be done either to archive the data or to read them in with the Excel tool for further processing.

You can export custom data by selecting menu options **Custom data** → **Export Cur. Activities**:

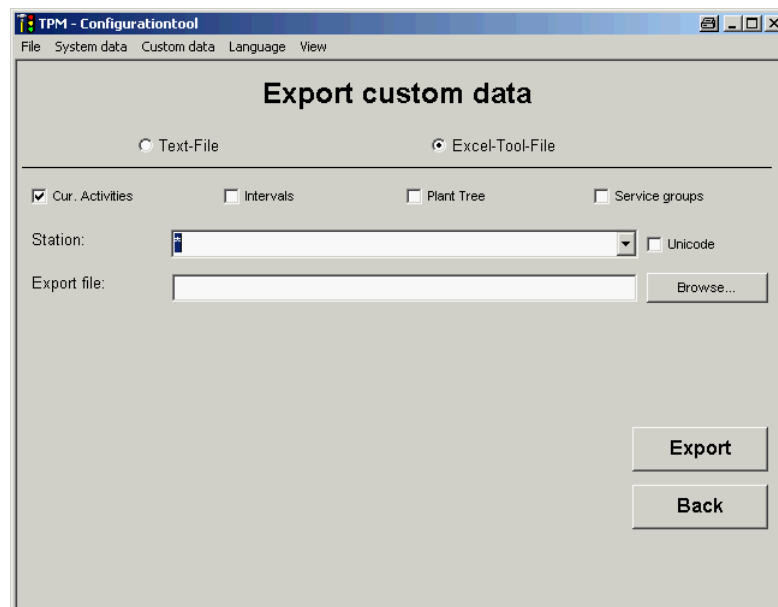


Fig. 5-26 Screen for exporting custom data

---

#### Note

If an \* symbol is entered in input field **Station** instead of the station's own name, the current activities are exported for all stations (these must already exist in the database).

If the export text is available in Unicode format (Chinese or Russian), you must check the Unicode box.

---

You can now proceed in one of the following ways:

- You can click on the **Back** button to branch back to the main display (without exporting data).
- You can click on the **Browse...** button to open a file browser in which you can select the tpm file you want to create.

Once you have decided what you want to export from this file by checking the appropriate box (**Cur. Activities**, **Intervals**, **Plant Tree** or **Service groups**), these elements will be written to the tpm file when you click on the **Export** button.

The success or failure of the export process is then displayed in an error list:

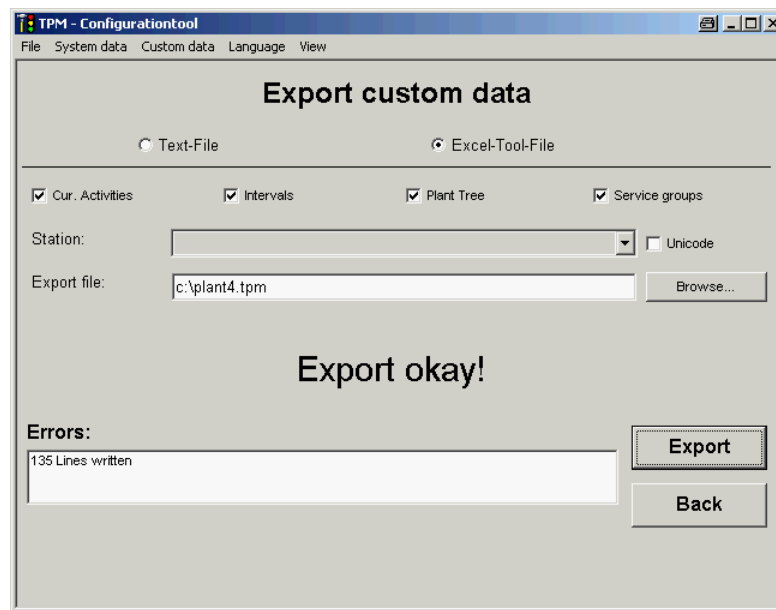


Fig. 5-27 Screen displaying a successful custom data import

### Text file option

If you select the **Text File** option, the data are exported as a CSV file. This can be edited further with Excel.

To create a CSV file, proceed according to the same principle described above.

### 5.10.2 Export completed activities

Completed activities can be exported to a csv file. This can be done either to archive the data or to read them in with the Excel tool for further processing.

You can export completed activities by selecting menu options **Custom data** → **Export Compl. Activity**:

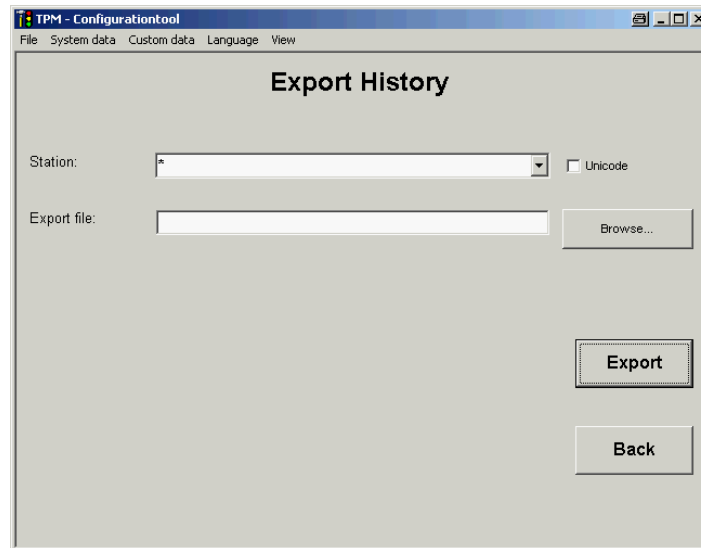


Fig. 5-28 Export completed activity data

---

#### Note

If an \* symbol is entered in input field **Station** instead of the station's own name, the completed activities are exported for all stations (these must already exist in the database). If the export text is available in Unicode format (Chinese or Russian), you must check the Unicode box.

---

You can now proceed in one of the following ways:

- You can click on the **Back** button to branch back to the main display (without exporting data).
- You can click on the **Browse...** button to open a file browser in which you can select the tpm file you want to create.

Once you have decided what you want to export from this file by checking the appropriate box (**Cur. Activities**, **Intervals**, **Plant Tree** or **Service groups**), these elements will be written to the tpm file when you click on the **Export** button.

The success or failure of the export process is then displayed in an error list:

## 5.11 Change the display language

You can change the display language by selecting menu option **Language**:

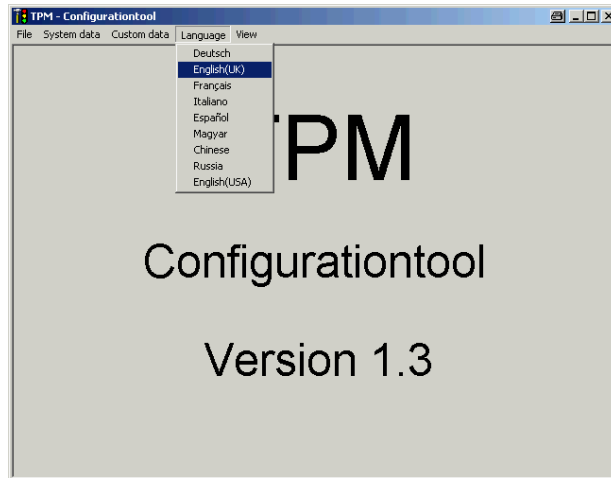


Fig. 5-29 Menu option for language selection

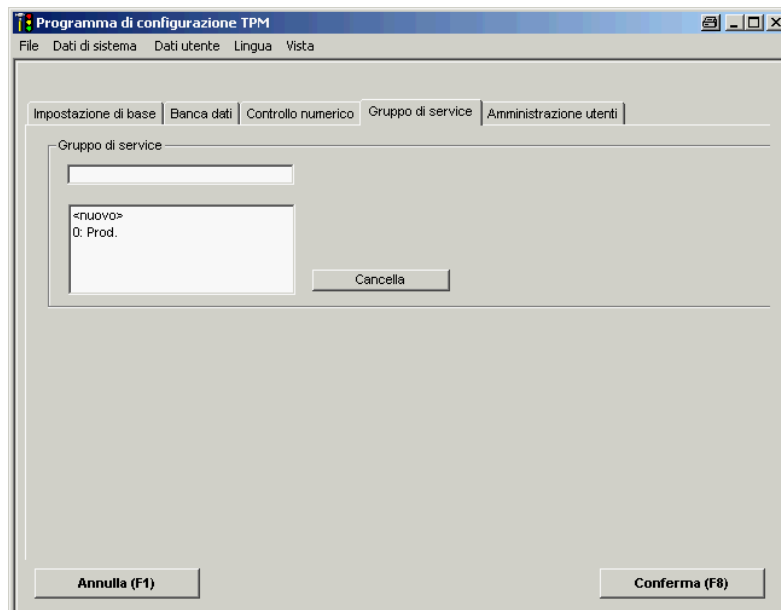


Fig. 5-30 Example of screen texts after switchover to Italian

## 5.12 Define a viewer (reader)

Select this menu option to choose a viewer.

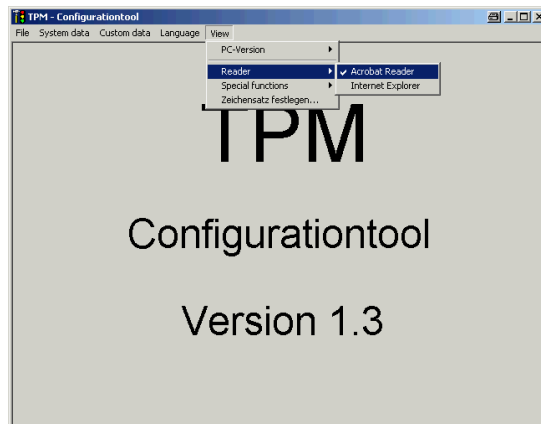


Fig. 5-31 Menu option for viewer selection

Acrobat Reader is set as the default. This can be used to read PDF files. With the Internet Explorer you can view file formats such as JPG and HTML. If you want to view other formats (e.g. WORD, EXCEL or PowerPoint files), you can install additional viewers (can be downloaded from Microsoft free of charge).

## 5.13 Define the TPM interface (PC version only)

Select this menu option to choose an interface for TPM. You can choose between menus and toolbar or softkeys. The menus setting applies only to the PC version as softkeys are always displayed on the PCU 50.



Fig. 5-32 Menu option for selecting the TPM interface

## 5.14 Define the print logo (PC version only)

Select this menu option to choose a print logo (e.g. your own company logo). This logo will then be printed out at the top right of every printed page.

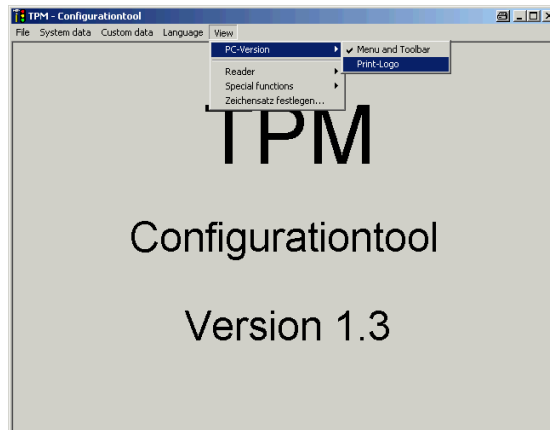


Fig. 5-33 Menu option for selecting the print logo

The following dialog appears:

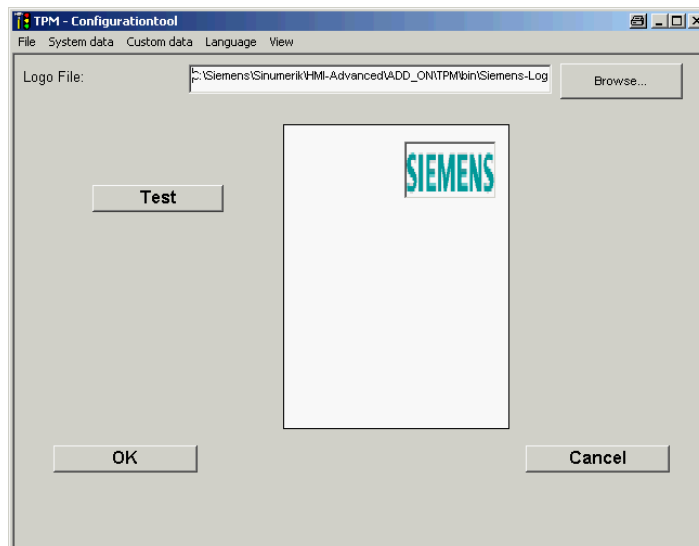


Fig. 5-34 Logo selection dialog

The path and file name for the Siemens logo default setting is preset. You can change this if you wish. The logo file should be a graphic file with format \*.ico (Icons), \*.wmf (Windows Meta File), \*.bmp (Bitmap) or \*.jpg (Bitmaps). The system attempts to scale the graphic so that it will fit into the border provided. This adjustment can cause distortion of large images. For this reason, the logo file should not be too large.

After you have selected a new logo file, you can click on the **Test** button to show a rough preview of the logo.

## 5.15 Special functions

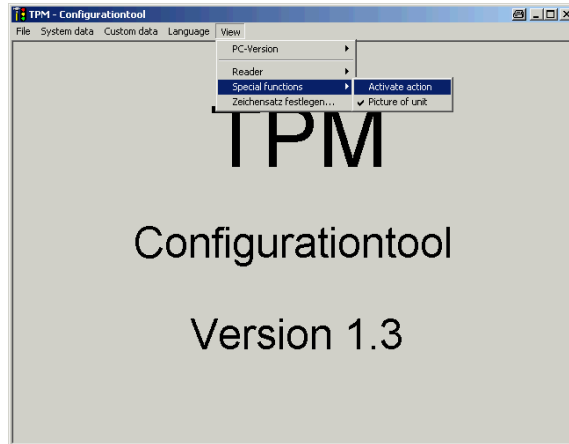


Fig. 5-35 Menu option for selecting special functions

You can enable or disable the special functions "Unit image" and "Activate activity" via this menu option.

## 5.16 Define a character set

You can set a new character set for TPM with this menu option. This may be necessary if you are using Unicode characters (Chinese or Russian).

The following dialog appears:

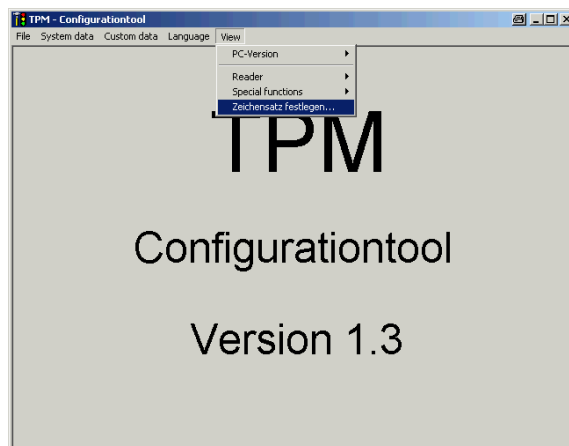


Fig. 5-36 Define a character set

To use a new character set, you must first deselect the standard set in the "New Character Set" input field. Then enter the new character set and confirm your input with "OK".





# 6

## 6 Excel Tool for File Imports and Updates

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6.2.1 Delete a worksheet.....	6-113
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## 6.1 Start screen

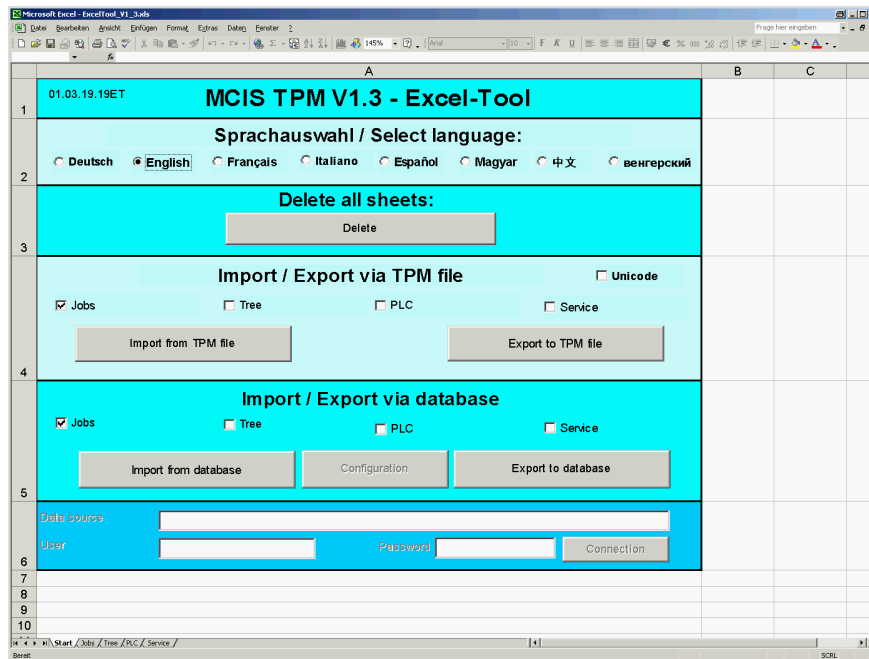


Fig. 6-1 Excel table with macros for creating tmp files for importing data to TPM (part 1)

### General

For the acquisition of manufacturer data, **TPM** features an Excel tool in the form of an Excel table **ExcelTool\_V1\_3.xls** which has the following macros:

- Import a TPM file
- Export a TPM file
- Import data directly from the TPM database
- Export data directly to the TPM database

---

### Note

Excel version 2000 or later must be installed for the Excel tool to function correctly. The execution of macros must also be enabled!

---

### Choose language

Each tab card contains option buttons for selection of a language. To create a text in one of the listed languages, you must select its option button beforehand. It is therefore possible to set up activities, PLC intervals and service groups in up to eight languages simultaneously.

## Delete worksheets

When you click on button "Delete all contents", all worksheet contents are deleted (after you have confirmed a safety prompt).

## Import / Export via TPM file

You can import (**Import from TPM file** button) or export (**Export to TPM file**) TPM data using the functions in this section. You must select or deselect the appropriate data type (**Jobs, Tree, PLC** or **service groups**).

---

### Note

If the data contain Chinese or Russian texts, remember to check the **Unicode** box as well!

---

A dialog then opens in which you can select the TPM file to be read (imported) or written (exported). A safety prompt requesting confirmation of import operations is also displayed, as imported data will overwrite any pre-existing files with the same name.

## Import / Export via Database

You can import or export TPM data from / to the TPM database using the **Import from Database** and **Export to Database** buttons in this section. You must select or deselect the appropriate data type (**Jobs, Tree, PLC** or **service groups**).

---

### Note

The buttons for importing and exporting via the database are active only if TPM is installed on the same computer as the Excel tool!

If the data contain Chinese or Russian texts, remember to check the **Unicode** box as well!

---

A safety prompt requesting confirmation of import operations is also displayed, as imported data will overwrite any pre-existing files with the same name.

When you select the Export button, a user login dialog is displayed (to prevent unauthorized persons from writing data to the TPM database). You must enter a user registered in the TPM database and the user's valid password in this dialog (see also Chapter 5, Configure System Parameters, subsection: User Administration). When the TPM package is installed, a user "TPM" with the password "TPM" is set up per default. You should however delete this user.

If the buttons for "Import/export database" are not active, you can activate them by setting up a link to another computer (e.g. PCU 50) provided that it is networked with your computer. To set up a network link, click on button **Configuration**.

You must then enter a data source:

```
"Provider=sqloledb;Data Source=REMOTECOMPUTERNAME;Initial  
Catalog=MCISDB",  
a user: "TPM" and  
a password: "TPM".
```

(REMOTECOMPUTERNAME must be replaced by the actual name of the computer on which the TPM database is installed).

If no error message is displayed when you click on the **Link** button, the buttons for "Import/export database" will become active.

## 6.2 Jobs (current activities) worksheet

All maintenance activities are entered in the Jobs worksheet:

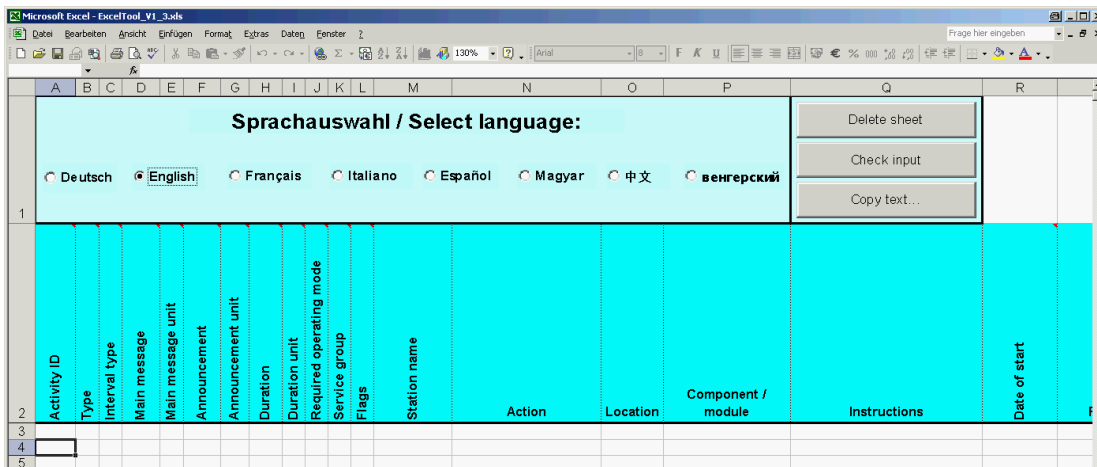


Fig. 6-2 Jobs worksheet

### Activity ID column

Each data record has a unique index **Activity ID** via which data can be identified irrespective of the data language.

---

#### Note

If you specify an index of 0, the index will be generated automatically when the data are imported to the database. If you enter a value other than 0 and this index value does not already exist, a new data record index will be set up. If the index value does already exist, however, the existing data record will be overwritten!

---

### Type column

You can select one of the following indices for the activity type:

- 0 = Cleaning
- 1 = Inspection
- 2 = Maintenance
- 3 = Repair
- 99 = Description

### Interval type column (also applies to interval type 2)

You can choose one of the following interval types:

- 1 = Time
- 0 = can be defined, corresponds to the ID entered in the PLC worksheet.
- 1 = can be defined, corresponds to the ID entered in the PLC worksheet.

### **Main message column (also applies to main message 2)**

The **Main message** column contains the value of the alarm cycle.

---

#### **Note**

The value entered must be a whole number.

---

### **Main message unit column (also applies to main message unit 2)**

The **Main message unit** column defines the unit of the alarm cycle for the main message.

0 = cycles  
1 = minutes  
2 = hours  
3 = days  
4 = weeks  
5 = months

### **Announcement column (also applies to announcement 2)**

The **Announcement** column contains the value of the announcement (advance warning) (activity changes to amber).

---

#### **Note**

The value entered must be a whole number.

---

### **Announcement Unit column (also applies to unit 2)**

The **Announcement unit** column defines the unit of the advance warning cycle.

0 = cycles  
1 = minutes  
2 = hours  
3 = days  
4 = weeks  
5 = months

### **Duration column**

The **Duration** column contains the time required to perform the maintenance job.

---

#### **Note**

The value entered must be a whole number.

---

### Duration unit column

The **Duration unit** column defines the measurement unit of the time required to perform the maintenance task.

- 1 = minutes
- 2 = hours
- 3 = days
- 4 = weeks
- 5 = months

### Required operating mode column

You can select one of the following indices for the mode:

- 0 = Automatic
- 1 = Manual
- 2 = Off
- 3 = Setup mode

### Service group column

You can choose one of the following service groups:

- 0 = can be defined, corresponds to:  
**System Parameters** → **Service Group** tab → **Service Group**
- 1 = can be defined, corresponds to:  
**System Parameters** → **Service Group** tab → **Service Group**
- 2...

---

#### Note

If you do not define a service group, it is assigned the following name in TPM:  
*SERVICE GROUP Index*

---

### Flags column

You can choose one of the following indices:

- 0 = The generated data records can be modified by the user.
- 1 = The data are manufacturer-protected. The generated data records cannot be modified by the user. Exception: Duration and announcement.
- 2 = The data records are not imported.

---

#### Note

The import time increases in proportion to the quantity of data contained in the import file!

---

### Station name column

Data records are only imported from the generated import file if the station name you specify here is included in the plant tree. Any other data records are ignored.

### Date of start column

The starting date must be entered in the following format: DD.MM.YY

---

#### Note

If the starting date is a future date, TPM does not start "counting" until this date.

---

### Columns with language-dependent texts

The columns **Action**, **Location**, **Component/Module** and **Comment** contain language-dependent texts. The columns **Operating Instructions** and **Unit Image Ref.** each refer to a language-dependent directory.

### Columns for alternative maintenance interval

The columns **Interval type 2**, **Main message 2**, **Main message 2 unit**, **Announcement 2** and **Announcement 2 Unit** contain values for an alternative maintenance interval which you can specify for every activity. The permitted value settings are described under the appropriate headings above.



### **6.2.1 Delete a worksheet**

When you click on button "Delete worksheet", the worksheet is deleted (after you have confirmed a safety prompt).

### **6.2.2 Check plausibility**

The contents of the table are checked when you click on button "Check plausibility". Any error messages are displayed in a separate list which you can deselect by clicking on the "Close" button for the list.

### **6.2.3 Copy texts**

If you set up a new activity, it is also set up for the other languages, but in the currently displayed language.

When you switch languages, you can edit these texts on a language-specific basis. If, however, you want to use this language more than once (e.g. English), you can copy it by activating button "Copy text...".

You then need to selected the relevant columns and languages.

### 6.3 Tree worksheet (plant tree)

The plant tree representing a plant with several internetworked TPM stations and a shared central database is entered in the Tree worksheet. This worksheet must not be filled in for a TPM installation with local database.

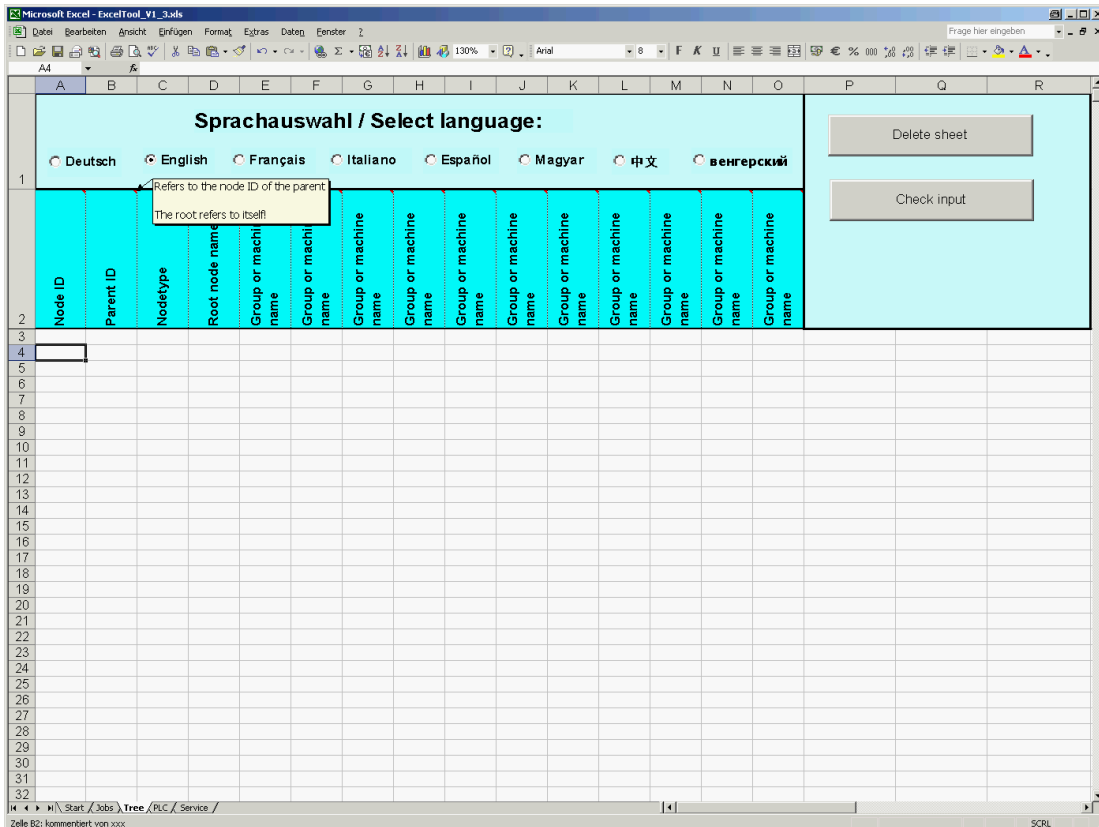


Fig. 6-3 Tree worksheet

#### Node ID column

Each station or group (station grouping) has a unique ID within the tree. This ID must be entered in this column.

---

#### Note

Changing the node ID of a station will cause data loss if data records for the relevant station are already stored in the database!

---

#### Parent ID

Every node in the tree (except for root: In this case, the father ID = own node ID) has a "father" (predecessor). The predecessor ID must be entered here.

**Nodetype column**

Only the first entry (line 3) has a mandatory setting of type R (Root). A machine has type M and a group type S.

**Root node name column**

The name of the root must be entered here.

**Group or machine name column**

Name of the group or machine. Depending on the branching depth, the name is automatically indented for greater clarity.

**6.3.1 Delete a worksheet**

When you click on button "Delete worksheet", the worksheet is deleted (after you have confirmed a safety prompt).

**6.3.2 Copy texts**

If you set up a new node (e.g. machine), it is also set up for the other languages, but in the currently displayed language.  
When you switch languages, you can edit these texts on a language-specific basis. If, however, you want to use this language more than once (e.g. English), you can copy it by activating button "Copy text...".

You then need to selected the relevant colums and languages.

## 6.4 PLC worksheet (intervals)

The interval types for the PLC are set up in the PLC worksheet (see also Chapter 5: Configure system parameters).

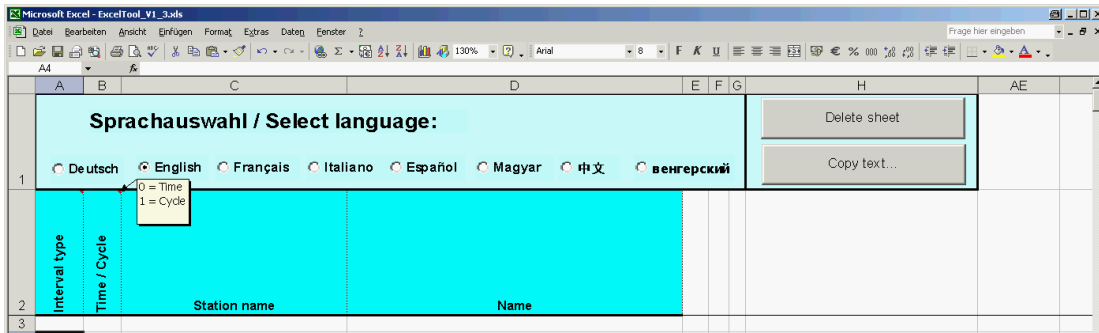


Fig. 6-4 PLC worksheet

### Interval type column

Each interval type has a unique ID. This must be entered here as a whole number. If you want to link an activity to this interval type, you must enter the type ID in column **Interval type** on the **Jobs** worksheet.

### Time / Cycle column

You must enter here whether the interval type is "time" (setting 0) or "cycle" (setting 1).

### Station name column

Enter here the name of the station to which the interval type must apply.

### Name column

Enter a name (max. 20 characters) for the interval type here.

### 6.4.1 Delete a worksheet

When you click on button "Delete worksheet", the worksheet is deleted (after you have confirmed a safety prompt).

### 6.4.2 Copy texts

If you set up a new interval type, it is also set up for the other languages, but in the currently displayed language.

When you switch languages, you can edit these texts on a language-specific basis. If, however, you want to use this language more than once (e.g. English), you can copy it by activating button "Copy text...".

You then need to selected the relevant columns and languages.

## 6.5 Service worksheet

Service groups are set up in the **Service** worksheet (see also Chapter 5: Configure system parameters).

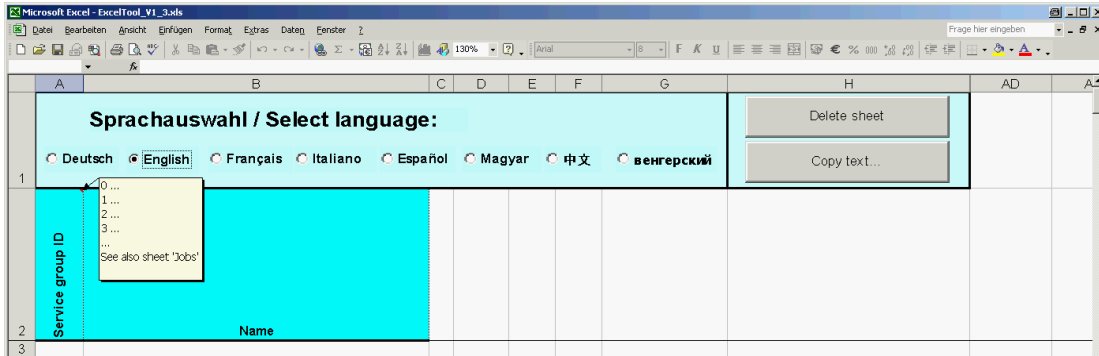


Fig. 6-5 Service worksheet

### Service group ID column

Each service group has a unique ID. This must be entered here as a whole number. If you want to link an activity to this service group, you must enter the group ID in column "Service Group" on the "Jobs" worksheet.

### Name column

Enter a name (max. 20 characters) for the service group here.

#### 6.5.1 Delete a worksheet

When you click on button "Delete worksheet", the worksheet is deleted (after you have confirmed a safety prompt).

#### 6.5.2 Copy texts

If you set up a new service group, it is also set up for the other languages, but in the currently displayed language.  
When you switch languages, you can edit these texts on a language-specific basis. If, however, you want to use this language more than once (e.g. English), you can copy it by activating button "Copy text...".

You then need to selected the relevant colums and languages.



# 7

## 7 Conversion

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## 7.1 XML message frame interface to TPM

### Introduction

In terms of its syntax, XML is a standardized, text-based language which can be used to represent data in a structured form.

The XML interface can be used to exchange TPM data with other programs. It must however be adapted for this purpose. A precondition for this functionality is that the Personal Web Server is installed when TPM is set up!

The process by which data can be read from the TPM database, or written to it, is described below.

The Microsoft Internet Explorer (version 5 or later) application is the simplest means to exchange data. If you enter the relevant URL (see below), the appropriate TPM data are displayed in the Explorer window.



**Function: XMLGetAllJobs****Transfer parameter:**

Language code  
(0=German, 1=English, ....)

**Description:**

Call all current activities stored in the database in the specified language. The data record fields are documented in the TPM Description of Functions (see Section 3.5).

**Example call (URL):**

<http://localhost/tpm?sql=execute+XMLGetAllJobs+0>

**Result (XML):**

```
<ROOT>
  <row JobId="1" Station name="CLIENT-2" Type"Maintenance"
    Activity="gr_TestActivity" Location="12.345.67.89"
    Module="gr_TestComponent" HM_Interval_Type="Time"
    HM_Value="1440" HM_Unit="3" VM_Value="90" VM_Unit="1"
    HM_DefValue="1440" HM_DefUnit="2" VM_DefValue="90"
    VM_DefUnit="1" EPL_ServiceGroup="Prod" EPL_Duration="15"
    EPL_Unit="1" EPL_Mode="Automatic" EPL_DefDuration="15"
    EPL_DefUnit="1" Ref.="Motor_GR.pdf" Flags="0" />
  <row JobId="2" Station name="CLIENT-3" Type"Maintenance"
    Activity="Test2" Location="12.345.67.89" Module="Test2"
    HM_Interval_Type="Time" HM_Value="1440" HM_Unit="3"
    VM_Value="90" VM_Unit="1" HM_DefValue="1440" HM_DefUnit="2"
    VM_DefValue="90" VM_DefUnit="1" EPL_ServiceGroup="Prod"
    EPL_Duration="15" EPL_Unit="1" EPL_Mode="Automatic"
    EPL_DefDuration="15" EPL_DefUnit="1" Ref.="Motor_GR.pdf"
    Flags="0" />
  <row JobId="3" Station name="CLIENT-2" Type"Maintenance"
    Activity="Test23" Location="12.345.67.89" Module="Test23"
    HM_Interval_Type="Time" HM_Value="1440" HM_Unit="3"
    VM_Value="90" VM_Unit="1" HM_DefValue="1440" HM_DefUnit="2"
    VM_DefValue="90" VM_DefUnit="1" EPL_ServiceGroup="Prod"
    EPL_Duration="15" EPL_Unit="1" EPL_Mode="Automatic"
    EPL_DefDuration="15" EPL_DefUnit="1" Ref.="Motor_GR.pdf"
    Flags="0" />
</ROOT>
```

**Function: XMLGetSingleJob****Transfer parameter:**

JobId  
(unique, internal identifier acquired by the database and assigned with an insert).  
Language code  
(0=German, 1=English, ....)

**Description:**

Call a current activity stored in the database and uniquely identified by the JobID and the language code. The data record fields are documented in the TPM Description of Functions (see Section 3.5).

**Example call (URL):**

<http://localhost/tpm?sql=execute+XMLGetSingleJob+5,0>

**Result (XML):**

```
<ROOT>
  <row Type="Maintenance" Activity="Remove chips"
    Location="12.345.67.89f" Module="Chip conveyor" HM_Interval
    type="Time" HM_Value="1440" HM_Unit="3" VM_Value="90"
    VM_Unit="1" HM_DefValue="1440" HM_DefUnit="3"
    VM_DefValue="90" VM_DefUnit="1" EPL_Service Group="Prod"
    EPL_Duration="20" EPL_Unit="1" EPL_Mode="Off"
    EPL_DefDuration="20" EPL_DefUnit="1" Ref.="Chips_gr.pdf"
    Flags="0" />
</ROOT>
```

**Function: XMLGetHistory****Transfer parameter:**

Language code  
(0=German, 1=English, ....)  
Start time  
(All completed activities stored in the database are transferred starting at the time specified here)

**Description:**

Call all completed activities stored in the database from a prespecified point in time. Data records can be uniquely identified by the language code and time. The data record fields are documented in the TPM Description of Functions (see Section 3.5).

**Example call (URL):**

(The start time in this example is 12.06.2001 09:00 Uhr. The blank in front of the time of day must be replaced by %20!)

**`http://localhost/tpm?sql=execute+XMLGetHistory+0,'12.06.2001%2009:00'`**

**Result (XML):**

```
<ROOT>
  <row Type="Maintenance" Activity="gr_TestActivity"
    Location="gr_testLocation" Module="gr_TestComponent" HM_Interval
    Type="Time" HM_Value="1440" HM_Unit="3" VM_Value="90"
    VM_Unit="1" HM_DefValue="1440" HM_DefUnit="2"
    VM_DefValue="90" VM_DefUnit="1" EPL_ServiceGroup="Prod"
    EPL_Duration="15" EPL_Unit="1" EPL_Mode="Automatic"
    EPL_DefDuration="15" EPL_DefUnit="1" Ref.="Motor_GR.pdf"
    Flags="0" Person="Init" Ack. Time="2001-06-13T10:55:19.493"
    Comment="Initialization" />
</ROOT>
```

**Function: XMLInsertJob****Transfer parameter:****Type (identifier)**

(0=Cleaning, 1=Inspection, 2=Maintenance, 3=Repair)

**Activity**

(brief description of activity, max. 40 characters).

**Location**

(code, max. 40 characters).

**Component**

(description of component (max. 40 characters).

**Interval identifier**

(-1=time)

**Main message/value**

(unit value for interval in minutes).

**Main message/unit**

(0=cycle, 1=minutes, 2=hours, 3=days, 4=weeks, 5=months).

**Manufacturer's specification main message/value**

(unit value for interval in minutes).

**Manufacturer's specification main message/unit**

(0=cycle, 1=minutes, 2=hours, 3=days, 4=weeks, 5=months).

**Announcement/value**

(unit value for interval in minutes).

**Announcement/unit**

(0=cycle, 1=minutes, 2=hours, 3=days, 4=weeks, 5=months).

**Manufacturer's specification announcement/value**

(unit value for interval in minutes).

**Manufacturer's specification announcement/unit**

(0=cycle, 1=minutes, 2=hours, 3=days, 4=weeks, 5=months).

**Service group**

(0=Prod).

**Duration**

(time required to perform maintenance task in minutes).

**Duration unit**

(0=cycle, 1=minutes, 2=hours, 3=days, 4=weeks, 5=months).

**Manufacturer's specification of duration**

(time required to perform maintenance task in minutes).

**Manufacturer's specification: Duration unit**

(0=cycle, 1=minutes, 2=hours, 3=days, 4=weeks, 5=months).

**Mode identifier**

(0=Automatic, 1=Manual, 2=Off, 3=Jog mode).

**Operating instructions reference**

(File name of PDF file)

**Unit display reference**

(file name of PDF file)

**Flags**

(0=no restrictions, 1=disabled by manufacturer, 2=do not import).

**Station identifier**

(assigns the data record (job) to the transferred station).

## Description

Insert the specified jobs in the database.  
The data record fields are documented in the TPM Description of Functions (see Section 3.5).

## Example call (URL)

(All blanks in strings must be replaced by %20 and by a + in the URL)

```
http://localhost/tpm?sql=execute+XMLInsertJob+2,  
    'Remove%20Chips','12.345.67.89','Chip conveyor',-1,1440,3,1440,3,  
    90,1,90,1,0,20,1,20,1,2,'Chips_gr.pdf','UnitDisplay.pdf',0,2
```

## Result (XML):

The unique ID assigned internally in the database is returned. This ID is later required to identify the data record.

```
<ROOT>  
    <row JobId="17" />  
</ROOT>
```

## Note:

This insert process enters the downloaded texts for all available languages (but only in the downloaded language). The foreign-language texts must then be entered and edited by updates.

**Function: XMLUpdateJob**

**Transfer parameter:**

**JobId**

(unique, internal identifier acquired by the database and assigned with an insert).

**Language code**

(0=German, 1=English, ....)

**Type (identifier)**

(0=Cleaning, 1=Inspection, 2=Maintenance, 3=Repair)

**Activity**

(brief description of activity, max. 40 characters).

**Location**

(code, max. 40 characters).

**Component**

(description of component (max. 40 characters).

**Interval identifier**

(-1=time)

**Main message/value**

(unit value for interval in minutes).

**Main message/unit**

(0=cycle, 1=minutes, 2=hours, 3=days, 4=weeks, 5=months).

**Manufacturer's specification main message/value**

(unit value for interval in minutes).

**Manufacturer's specification main message/unit**

(0=cycle, 1=minutes, 2=hours, 3=days, 4=weeks, 5=months).

**Announcement/value**

(unit value for interval in minutes).

**Announcement/unit**

(0=cycle, 1=minutes, 2=hours, 3=days, 4=weeks, 5=months).

**Manufacturer's specification announcement/value**

(unit value for interval in minutes).

**Manufacturer's specification announcement/unit**

(0=cycle, 1=minutes, 2=hours, 3=days, 4=weeks, 5=months).

**Service group**

(0=Prod).

**Duration**

(time required to perform maintenance task in minutes).

**Duration unit**

(0=cycle, 1=minutes, 2=hours, 3=days, 4=weeks, 5=months).

**Manufacturer's specification of duration**

(time required to perform maintenance task in minutes).

**Manufacturer's specification: Duration unit**

(0=cycle, 1=minutes, 2=hours, 3=days, 4=weeks, 5=months).

**Mode identifier**

(0=Automatic, 1=Manual, 2=Off, 3=Jog mode).

**Detail Info Ref.**

(file name of PDF file)

**Flags**

(0=no restrictions, 1=disabled by manufacturer, 2=do not import).

**Station identifier**

(assigns the data record (job) to the transferred station).

**Language code**

(0=German, 1=English, ....)

**Description:**

Edit the specified job in the database. The transferred texts are entered according to the specific language code.  
The data record fields are documented in the TPM Description of Functions (see Section 3.5).

**Example call (URL):**

(All blanks in strings must be replaced by %20 and by a + in the URL)

```
http://localhost/tpm?sql=execute+XMLUpdateJob+2,0,  
    'Remove%20Chips','12.345.67.89','Chip conveyor',-1,1440,3,1440,3,  
    90,1,90,1,0,20,1,20,1,2,'Chips_gr.pdf',0,2,0
```

**Result (XML):**

An error number is returned. Possible values:

0: Job updated successfully

-1: Update rejected because data record does not exist

-2: Update rejected because data record has not been released for updating  
(flag = 1)

```
<ROOT>  
    <row Error number="0" />  
</ROOT>
```

**Function: XMLDeleteJob****Transfer parameter:****JobId**

(unique, internal identifier acquired by the database and assigned with an insert).

**Description:**

Delete a current activity stored in the database and uniquely identified by the JobID and the language code.

**Example call (URL):**

**<http://localhost/tpm?sql=execute+XMLDeleteJob+5>**

**Result (XML):**

An error number is returned. Possible values:

0: Job deleted successfully

-1: Delete rejected because data record to be deleted does not exist

-2: Delete rejected because data record is not released for deletion (flag = 1)

```
<ROOT>
```

```
<row Error number="0" />
```

```
</ROOT>
```



**Function: XMLInsUpdJobWithDId****Transfer parameter:****Data record ID**

(In addition to the ID assigned by the database, you can use this function to set up or modify an activity and assign a user-specific ID to it at the same time).

**Language code**

(0=German, 1=English, ....)

**Type (identifier)**

(0=Cleaning, 1=Inspection, 2=Maintenance, 3=Repair  
Activity

(brief description of activity, max. 40 characters).

**Location**

(code, max. 40 characters).

**Component**

(description of component (max. 40 characters).

**Interval identifier**

(-1=time)

**Main message/value**

(unit value for interval in minutes).

**Main message/unit**

(0=cycle, 1=minutes, 2=hours, 3=days, 4=weeks, 5=months).

**Manufacturer's specification main message/value**

(unit value for interval in minutes).

**Manufacturer's specification main message/unit**

(0=cycle, 1=minutes, 2=hours, 3=days, 4=weeks, 5=months).

**Announcement/value**

(unit value for interval in minutes).

**Announcement/unit**

(0=cycle, 1=minutes, 2=hours, 3=days, 4=weeks, 5=months).

**Manufacturer's specification announcement/value**

(unit value for interval in minutes).

**Manufacturer's specification announcement/unit**

(0=cycle, 1=minutes, 2=hours, 3=days, 4=weeks, 5=months).

**Service group**

(0=Prod).

**Duration**

(time required to perform maintenance task in minutes).

**Duration unit**

(0=cycle, 1=minutes, 2=hours, 3=days, 4=weeks, 5=months).

**Manufacturer's specification of duration**

(time required to perform maintenance task in minutes).

**Manufacturer's specification: Duration unit**

(0=cycle, 1=minutes, 2=hours, 3=days, 4=weeks, 5=months).

**Mode identifier**

(0=Automatic, 1=Manual, 2=Off, 3=Jog mode).

**Detail Info Ref.**

(file name of PDF file)

**Flags**

(0=no restrictions, 1=disabled by manufacturer, 2=do not import).

**Station identifier**

(assigns the data record (job) to the transferred station).

**Language code**

(0=German, 1=English, ....)

**Description:**

If the database contains an activity with the data record ID specified in the transfer parameter, then its columns are modified. If it does not exist, then a new activity is set up. The data record fields are documented in the TPM Description of Functions (see Section 3.5).

**Example call (URL):**

(All blanks in strings must be replaced by %20 and by a + in the URL)

```
http://localhost/tpm?sql=execute+XMLInsUpdJobWithDId+2,0,  
'Remove%20Chips','12.345.67.89','Chip conveyor',-1,1440,3,1440,3,  
90,1,90,1,0,20,1,20,1,2,'Chips_gr.pdf',0,2,0
```

**Result (XML):**

An error number is returned. Possible error values:

- >0: Insert or update successful. The error number returned corresponds to the internal job ID.
- 1: Update rejected because data record ID has been assigned more than once.
- 2: Update rejected because data record has not been released for updating (flag = 1).

```
<ROOT>  
    <row Error number="23" />  
</ROOT>
```

**Note:**

This insert process enters the downloaded texts for all available languages (but only in the downloaded language). The foreign-language texts must then be entered and edited by updates.

**Function: XMLDeleteJobWithDId****Transfer parameter:****Data record ID**

(In addition to the ID assigned by the database, an activity can also be identified by the data record ID (provided that this is specified when the data record is inserted).

**Description:**

Delete a current activity stored in the database and uniquely identified by the data record ID.

**Example call (URL):**

**`http://localhost/tpm?sql=execute+XMLDeleteJobWithDId+5`**

**Result (XML):**

An error number is returned. Possible values:

- 0: Job deleted successfully
- 1: Delete rejected because data record to be deleted does not exist
- 2: Delete command rejected because the data record to be deleted is not uniquely identifiable via its data record ID
- 3: Delete rejected because data record is not released for deletion (flag = 1)

```
<ROOT>  
    <row Error number="0" />  
</ROOT>
```





# A

## A Appendix

### A.1 List of abbreviations

<b>Abbreviation</b>	<b>Full version</b>
.CSV	MS Excel-compatible document
.PDF	Portable Document Format
.TXT	Text format
DB	Database
Dbxy	Data block (e.g. 59)
DNC	Direct Numeric Control
h	Hour
HMI	Human Machine Interface
IH	Servicing and maintenance
MDA	Machine Data Acquisition
MS	Microsoft
MSDE	Microsoft Data Engine
ODBC	Open Database Connectivity
OEM	Original Equipment Manufacturer
OLE	Object Linking & Embedding
OP	Operator Panel
OPC	OLE for Process Control
PC	Personal Computer
PCU	PC Unit
PDA	Production Data Acquisition
PLC	Programmable Logic Controller
PMT	Parts Monitoring & Tracking
ProTool Pro	Configuration tool
PWS	Personal Web Server
RCS	Remote Control System
TDI	Tool Data Information
TPM	Total Productive Maintenance
XML	Extensible Markup Language





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