

User's Guide Edition 2003-10

motion control

information system

SINUMERIK 840D/840Di/810D

MDA Plant

Analysis

**SIEMENS**



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# 1 Overview

## 1.1 General

### Functions of the user interface:

The user interface makes available the following functions:

- Graphic evaluations  
You can analyze the course and frequency of individual status conditions.
- Tables  
You can view the current status conditions, the logbooks and the compressed data in tables.

This description gives you an overview of the individual functions of the user interface.

### Windows PC and Operator Panels:

The user interface is designed to be used on a PC under Windows NT 4.0.

You can also start it on an Operator Panel running Windows NT (e.g. Siemens' OP 670) with adequate display resolution (1024 x 768 pixels and better).

### Configurations:

You can use configurations to change the following.

- the machines and units
- the user groups and user logins
- the fields in the screen forms
- the columns in the tables
- the number of function keys at the bottom and on the right-hand side
- the icons and functions on the function keys per screen form
- the icons in toolbar per screen form

### Authorization groups:

Depending on the user group, you can deactivate individual functions.

All the descriptions of screen forms and function descriptions assume the default configuration on a PC running Windows NT 4.0 or Windows 2000 and show the functions that are configured there on delivery.

## 1.2 Defining Machines and Units

You define machines and units by means of configuration.

In MDA, a machine is classified by the following data:

- WERK  
The four-digit WERK (plant) identifier is for grouping machines that are all located in the same plant or shop.
- MASCHINE  
Machines can consist of several units. One unit is defined as the "main unit" and it represents the status of the entire machine.
- AGGREGAT  
In addition to the main unit, each machine can have several units that represent sections of the machine, e.g. feed conveyor, pendulum grinder, etc.

Depending on how the screen forms are configured, you can omit the "units" subgrouping. In this description, the screen forms are shown without unit selection.

In addition, each machine has a unique internal number, i.e. the "APLZ-NR". In the database tables, the machine is identified by means of this internal number.

Each machine and each unit can have their own status conditions, see the Chapter entitled "Grouping Status Conditions" on page 1-2.

## 1.3 Grouping Status Conditions

You define status conditions using configuration.

Status conditions are grouped in "status groups". A status group is assigned to each machine and each unit in the configuration. You use the status group to indicate for each machine and each unit the status conditions that they can take on.

Within one status group, you can define the status conditions as main and sub-status conditions.

Each status is defined by a number consisting of five or more digits. The last four digits define the sub-status condition with the digits before it defining the main status condition (status class).

Example:

Status no.	Status type:	Status text
40000	Main status condition:	Disturbance
41010	Sub-status condition:	Order missing
41020	Sub-status condition:	Material missing
42010	Sub-status condition:	Tool breakage
42020	Sub-status condition:	Oil loss

Each status has a priority. The lower the priority number, the higher the priority of the status.

## 1.4 Operator Inputs to Screen Forms

You can make inputs to the user interface screen forms using the mouse or just the keyboard.

### Name of the current screen form:

The system enters the name of the current screen form in the window's header.

### Keyboard inputs:

Key	Effect
TAB	Moves to the next field in the screen form
F1-Fxx	Only if pushbuttons are configured in the footer: Pressing function keys F1 to Fxx starts the functions assigned to the pushbuttons in the footer.
R1-Rxx	Only if pushbuttons are configured on the right-hand side: Depending on the PC or Operator Panel, you execute the pushbuttons on the right-hand side using the right-hand function keys or Shift + the bottom function keys.
TOGGLE	Using the toggle key, you can select and deselect the checked rows. The toggle key is on the PC in the middle of the numeric keypad (the 5 key).

### Date and time input:

The date and time input has been made very user-friendly:

You have the following options for entering the **date**:

- Entry in the normal format of the respective country**, Example: '28.2.2002' or '2002-2-28'  
 In this case, you must enter the day, month and year and the separator in exactly the same order as the program outputs the date.  
 The system uses the format that you specified at configuration of MDA in the "DAYFORMAT" key of the general settings in the screen form texts of the current language.
- Date style**: '280202' or '28082002'  
 You enter the day, month and year without separators.  
 The day and the month must be in two-digit form; the year can be in two- or four-digit form.  
 The system interprets the first two digits as the day, the next two as the month and the remaining digits as the year.  
 Two digit years are interpreted as follows:  
 00 .. 90 → 2000 .. 2090  
 91 .. 99 → 1991 .. 1999
- Paging using the cursor keys**:  
 Using the up arrow and down arrow keys, you can page one day forwards or backwards.  
 Using Shift and the up arrow and down arrow keys, you can page one month forwards or backwards.
- If you enter a date in the 'From Time' that is before the first available data record, the system automatically sets the "From Time" to the time of the first data record.

In the "analysis of reason for disturbance", "availability" and "history evaluations", you can choose one of the following time types: "Today", "Shift", "Day", "Month" and "Year".

Special rules apply to time types "Month" and "Year":

- **'Month':**

Input options with month fields for "January 2002":

"01.02" "01.2002" "0102" "012002"

Using the cursor keys, you can page one month forwards and backwards in each case.

- **'Year':**

Input options with year fields for "2002":

"02" "2002"

Using the cursor keys, you can page one year forwards and backwards in each case.

### Choosing shifts/days of the week:

With the "Shift" time type, you can either enter an asterisk (\*) in the "Shifts" field for all the shifts, or you can enter the desired shift numbers separated by commas, for example "1, 3". In this case, the evaluation only takes into account the data of these shifts.

With the "Day" time type, you can either enter an asterisk (\*) in the "Days of the week" field for all the days of the week, or you can enter the desired days of the week separated by commas, for example "MO, TU, FR". In this case, the evaluation only takes into account the data of these days of the week.

The system displays the abbreviations that are used in the respective languages in the footer if your input is faulty. They are parameterized in the foreign language table "TEXT\_MASKS" under the "TagS..." keys.

### The following applies to all the time types:

If you page in the "From" field and the "From" date becomes greater than the "To" date, the system automatically enters the same month in the "To" field.

If you page in the "To" field and the "To" date becomes less than the "From" date, the system automatically enters the same month in the "From" field.

You have the following options for entering the **clock time**:

- **Input in the form 'HH:MM'**, Examples: '17:12', '8:08'

The system automatically converts inputs in short form:

"7:2" → "07:02"  
 "5" → "05:00"  
 "18" → "18:00"  
 ":4" → "00:04"

- **Input without a separator**, Examples: '855', '1205'

If you only enter one or two digits, the system interprets the number as an hour.

If you enter three or four digits, the system interprets the last two digits as minutes and ones before them as the hour:

"855" → "08:55"  
 "1205" → "12:05"  
 "120" → "01:20"  
 "12" → "12:00"  
 "1" → "01:00"

- **Paging using the cursor keys:**

Using the up arrow and down arrow keys, you can page one hour forwards or backwards.

Using Shift and the up arrow and down arrow keys, you can page one minute forwards or backwards.

The system automatically applies the time range that you set with one evaluation to the other evaluations.

### Zooming the screen forms:



You can change the sizes of the screen forms. The system adapts graphics, tables and lists to the current size of the screen form.

**Filling the screen form with data:**

By means of configuration, you can set whether the system fills the screen forms with data as soon as they are displayed, or not until you click on the OK pushbutton (Global Parameters → SCREEN\_FILL).

Pressing the RETURN (Enter) key in screen forms has the same effect as clicking on the OK pushbutton.

**Cyclically updating the screen forms:**

The system updates the screen forms that contain graphic evaluations on a cyclical basis if the current instant is in the selected time range and you activate updating.

In each screen form's header, you can activate or deactivate updating and set the duration of updating in seconds. These settings are stored for each screen form on a user-specific basis.

**Width of the legend:**

In many screen forms, the system outputs on the left of the screen a legend that contains additional texts or machine designations. You can use the mouse to change the width of this legend in every screen form.

The currently set width is stored for each screen form on a user-specific basis.

See also chapter "User-Specific Settings" on page 1-6

## 1.5 User-Specific Settings

The system stores the following data and settings on a user-specific basis under the user name of the login screen in the database:

- The default machine that is specified in the 'selection of units' screen forms
- Name of the evaluation definition that was selected last
- Name of the machine group that was selected last
- The settings are stored in the evaluation definitions on a user-specific basis.
- The machine groups are stored on a user-specific basis.
- For each screen form, assuming that it is present there:
  - Width of the legend
  - Updating of the screen form activated/deactivated
  - Cycle time of updating in seconds
- Path and name of the export file in the case of 'Print -> Export to Excel'

### User-specific plant view:

When configuring user names, you can specify a user-specific plant view. You do this in MDA by parameterizing a WHERE clause for the select to the table containing the machine data.

The number of the SQL statement that contains the WHERE clause for the user-specific plant view is defined in the general configurations (table GLOBAL\_PARA) under parameter SQLNR\_USER\_APLZ; this is normally statement number "10".

When configuring user names of MDA, you can store SQL statements for each user. Under the number specified above, you must configure for the user-specific plant view a WHERE clause for select to table APLZ\_STAMM which contains the master data of the machines and units.

Example: WERKS = 'MECH' and GRUPPE like '4832%'

In this case, users see in MDA screen forms only the machines and units that match this selection.

## 1.6 Printing Tables/Exporting Data to Excel

The user interface makes available two print modes:

- *Simple printing:*  
Printing as a hardcopy of the current screen form only
- *Enhanced printing*  
Printing hardcopies and printing the data in table form and exporting the screen form data to Excel

You can switch between the two modes by configuring the general settings.

General Parameter → GUI\_ANALYS → PRINT\_FLAG  
 Values:       0 - Simple printing  
               1 - Enhanced printing

### Simple printing of hardcopy:

If you trigger printing here, the system outputs to the computer's default printer a hardcopy of the current screen form as a graphic.

### Enhanced printing of tables/exporting to Excel

In the case of enhanced printing, the system first displays a selection form.

On the left-hand side of the form, you can choose the print mode:

- *Hardcopy of the screen form:*  
Hardcopy of the current screen form as a graphic to the printer that you selected on the right-hand side. This print mode is available with all screen forms .
- *Print data in table form:*  
The screen form's data is printed as a table with a header and continuation sheets.  
This print mode is blocked if the current screen form does not support it.
- *Create export file for Excel:*  
The system writes the data of the screen forms to a .csv-format file. You can read this file in Excel.  
Exporting to Excel is blocked if the current screen form does not support it.

In the case of the "Hardcopy" and "Tables" print modes, you can choose on the right-hand side of the screen form a printer and either the Portrait or Landscape paper format.

For exporting the data to Excel, you can specify on the right-hand side of the screen form the path and the name of the export file.

Notes:

- The 'Print' function is only available if at least one printer is set up on the computer. In this connection, the printer in question can be a local one or on a network.
- The export file to Excel is created in .csv (Comma Separated Values) format. You can view this file in any text editor program.  
If Microsoft Excel is installed, you can start the program by double-clicking on the file and then you can view the data of the screen form in an Excel worksheet.
- The system stores the path and name of the export file on a user-specific basis under the name that was entered in the login screen of the user interface.

## 1.7 Starting the User Interface

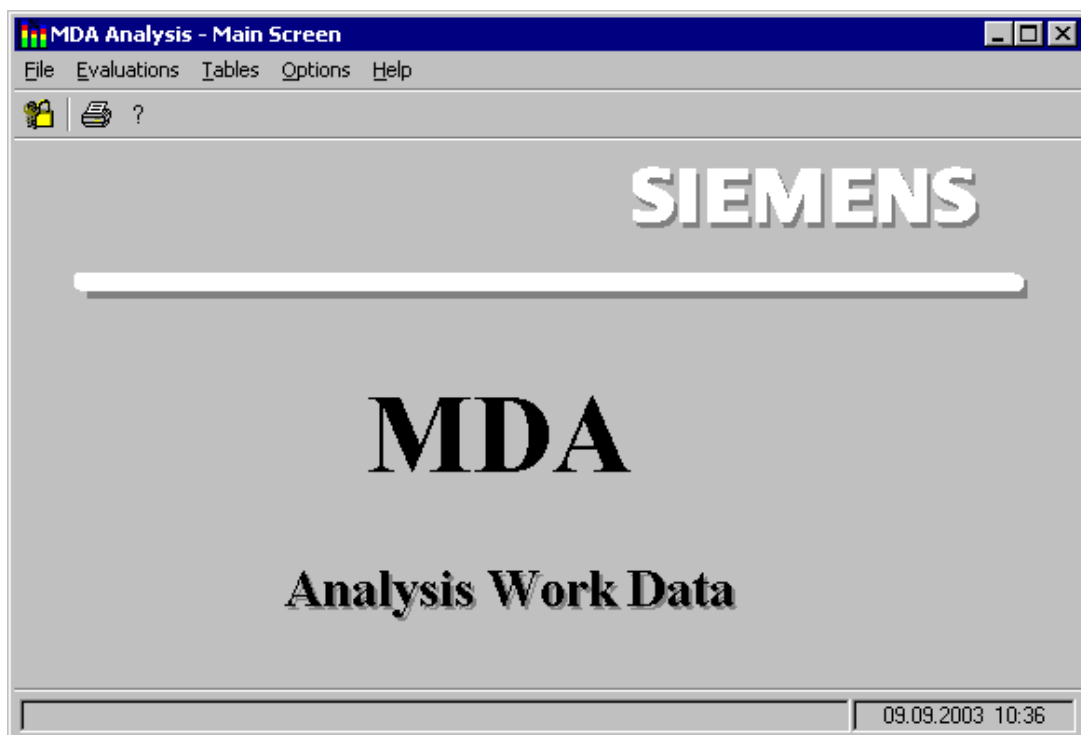
You can start the user interface using the Windows Start button or directly from the directory:

- Using the Start button, click on: 'Start -> Program Files -> MDA -> Analysis' or
- in the installation directory double-click or press Return with the focus on the 'AnalysGUI.exe' program.

After starting, the user interface displays the login screen. When you enter a valid user name and its associated password, the system displays the screen form that was defined as the start screen at configuration.

If you specified at configuration that the system is to start without a login screen, the user name that you entered at configuration is used and the system immediately displays the configured start screen.

As-delivered, the main screen is configured as the start screen



Using the menu bar and the toolbar below it, you can switch to the individual screen forms and make inputs to them.

If required, you can also configure the functions of the toolbar and the menu bar to a footer and a bar on the right of the screen containing pushbuttons, which you can then operate using function keys.

The functions that you have available depend on the configured authorization group.

## 1.8 Menu Bar

You call the individual screen forms of the user interface by means of the "Evaluations" and "Tables" menu entries.

The functions in the individual screen forms are entered in the toolbar. You make operator inputs in the screen forms using the toolbar.

Using the menu, you can call directly from each screen form all the other screen forms. The functions that you see in the menu depend on the current authorization group and the configuration of the menu bar.

Structure of the menu if all the functions are available:

- **File**
  - Main screen                                      Displays the main screen
  - Login screen                                      Displays the login screen to log in again
  - Print ...    Print screen form for printing and exporting the data to Excel
  - End    Exits from the user interface
- **Evaluations**
  - Select units                                        Chooses a preferred machine or unit
  - Select status conditions                        Chooses the status conditions to be displayed
  - Analysis of reason for disturbance            Displays the duration and frequency of status conditions
  - Status analysis                                    Displays the course of the status conditions
  
  - Availability analysis                            Displays the status conditions in percent
  - History of status conditions                    Evaluation of status conditions over time
  - History of availability                           Displays availability/rate of utilization over time
  - OEE distinctive numbers                        Displays distinctive numbers
  
  - Evaluation groups                                Definition of evaluation groups
  - Analysis of reason for disturbance for evaluation groups
  - Status analysis for evaluation groups
  - Availability analysis for evaluation groups
  - History of status conditions for evaluation groups
  - History of availability for evaluation groups
  - OEE distinctive numbers for evaluation groups
  
  - Call report                                         Starts an Access database report.  
You can use this to integrate your own evaluations.
- **Tables**
  - PDA logbook                                        Output of event logbook
  - Current status conditions                        Output the list containing all the pending status conditions.
  - Operation logbook                                List containing plant events like interrupted connections
  - Shift compression                                List containing all the status conditions with the times they started/ended and their durations
  - Shift total    List containing accumulated data of the status conditions per shift
  - Day total     List containing accumulated data of the status conditions per day
  - Month total                                         List containing accumulated data of the status cond. per month
  - Year total    List containing accumulated data of the status conditions per year
- **Options**
  - Language: German/English/...                Switches languages
  - System logbuch                                    Display MDA's error and alarm logbook
- **Help**
  - Contents    Displays this help
  - About    Displays the version number of the user interface

## 1.9 Pushbuttons on the Toolbar

Below the menu bar, there is the toolbar with its symbol pushbuttons.












When you move the mouse pointer over the individual pushbuttons, the system displays a tooltip that describes it in more detail.

To trigger the function of a pushbutton, click on it with the left mouse button.

### Configuring the pushbuttons in screen forms:

Each screen form has specific functions for the toolbar, e.g. the "OK" function for displaying values. You can configure the contents of the toolbar and the icons for each screen form.

The following list contains all the available functions with the supplied icons for the toolbar.

Icon	Tooltip	Function
	OK	Fills the current screen form with data. Saves changes in input screen forms.
	Discard changes	Discards the changes and displays the screen form again with the original data.
	Save	Writes the change data to the database
	Adapt table	Displays a follow up screen form for customizing the table: The columns to be displayed, to change the sequence and width of the columns
	Select status conditions	Chooses status conditions and other configurations for the "analysis of reason for disturbance" "status analysis", and other screen forms.
	Define evaluation group	Defines evaluation groups (groups containing machines and units)
	Screen form "xxx"	In graphic evaluations, switches from group evaluation to individual evaluation.
	xxx evaluation group	In graphic evaluations, switches from individual evaluation to group evaluation.
	"Login" screen form	Displays the login screen to change user logins.
	Print	Displays the print screen form
	Help texts	Displays Help.





## 2 Graphic Evaluations

### 2.1 Select Units Screen Form

Call from menu bar: "Evaluations → Select units"

In this screen form, you can see the current status with the highest priority for all the units of a machine plant or for all the machines.

You can use this screen form to define a preferred machine and a preferred unit. The system presets the evaluation screen forms with these preferred types at start-up of the user interface.

Unit	Name	State
AF51002A		00000

#### Default setting of the screen form:

At display, the screen form contains the following default values:

- Plant, machine: Preset machine
- Table: All the units of the preferred machine
- Below the Table: User-specifically saved preferred machine and unit

The system only displays the status in the screen form if table "MDE\_ZUSTAND" is supplied in the MDA database.

#### Operator inputs in the screen form:

In the "Plant" and "Machine" pick lists, you can switch to another machine.

If you choose the first entry (\*) in the "Machine" pick list, the system displays in the table the main units of all the machines.

If you choose a single machine in the pick list, the system displays in the table all the units of this machine.

You can choose one unit in the table. When the system displays other screen forms of this user interface, this unit is entered as the preferred one.

If you want the preferred unit to apply after exiting and restarting the user interface, you must use the "OK" pushbutton to save the preferred unit.

**Updating the data:**

The system updates the status data in the table on a cyclical basis if you check the "Update" box. Next to the box, you can specify the updating period in seconds.

The system stores these settings on a user-specific basis under the name that was entered in the login screen of the user interface.

**Note:**

Depending on the configuration of the screen form, the system displays only the "Preferred Machine" field or, additionally, the "Preferred Unit" field below the table.

## 2.2 "Analysis of Reason for Disturbance" Screen Form

Call from menu bar: "Evaluations → Analysis of reason for disturbance"

The screen form shows you for a specified period of time and for a selected machine or unit the status conditions that occurred, their durations and their frequencies.

Status	Duration	Frequency
Production	13:20:10	3821
Machine on/off	8:00:40	3817
Disturbance	2:39:10	1909

### Default setting of the screen form:

At display, the screen form contains the following default values:

- Plant, machine, unit: Preset machine and unit  
Note: Depending on the configuration, the system does not display the "unit" field.
- Period of time:  
On first displaying a screen form with period of time:  
From: Current instant - Configured default period  
To: Current instant + 30 minutes  
Otherwise:  
Period of time that was last selected in a screen form.
- Definition  
Name of the evaluation definition that is saved on a user-specific basis.
- Graphic: Data of the period of time or blank

**Operator inputs in the screen form:**

In the screen form, you can

- choose a machine and possibly a unit in pick lists,
- specify a time range.
- choose an evaluation definition and
- change the width of the legend by clicking and holding down the left mouse button on the right-hand edge of the legend and dragging it to the desired width.

**If the "Units" field is visible, the following applies:**

If you choose a single machine in the "Machine" pick list, the system displays in the "Units" pick list all the units of this machine.

If you choose the asterisk (\*) entry in the "Machine" pick list, the "Units" pick list shows all the units and all the machines of the current plant.

If you use wildcards to enter a filter in the "Machine" pick list (e.g. mill\*), the "Units" pick list shows the names of all the units and all the machines of the current plant that match the filter.

**Important!** The system only enters units in the unit list that match the "Machine" selection and for whose status group status conditions are selected in the chosen "evaluation definition". Zustände selektiert sind.

**Time types:**

In MDA, the statistical data is stored in different degrees of compression:

- **'Current'** - Current log  
This contains the latest status conditions and goes back a fixed number of entries into the past. You specify the maximum number of entries in the log by means of configuration.
- **'Shift'** - Compression for shifts  
The system stores the total times of the status conditions per unit for every shift. You specify the number of shifts in shift compression by means of configuration.
- **'Day'** - Compression for days  
The system stores the total times of the status conditions per unit for every day. You specify the number of days in day compression by means of configuration.
- **'Month'** - Compression for months  
The system stores the total times of the status conditions per unit for every month. You specify the number of months in month compression by means of configuration.
- **'Year'** - Compression for years  
The system stores the total times of the status conditions per unit for every year. You specify the number of years in year compression by means of configuration.

Using the "Period of time" pick list, you can choose the current log ("Current") or a compression range ("Shift", "Day", "Month", "Year").

The following applies to the **"Shift"** period of time:

In "From", you enter the date and shift number where you want the evaluation to start.

In "To", you enter the date and shift number where you want the evaluation to end.

In the "Shifts" field, you can enter the shift numbers separated by commas that you want the system to use.

The following applies to the **"Day"** period of time:

In the "Days of the week" field, you can enter the days of the week separated by commas that you want the system to use.

**Contents of the graphic:**

The system only shows the status conditions that are selected in the evaluation definition for the status group of the chosen unit and whose minimum frequencies and minimum durations are greater than or equal to the minimum values that are specified in the evaluation definition.

If the minimum frequency and minimum duration are set to zero, the system displays all the data.

If none of the status conditions meets the stipulations, a message is issued.

The following applies to time type "Current" only: If the current instant is displayed in the graphic, the system determines the currently pending status conditions and includes them in the statistical calculation in addition to the status data in the log.

If it is not possible to display all the status conditions in the visible area of the graphic, you can use the vertical scroll bar to view the other status conditions.

Sub-status conditions are marked by a greater than character (>).

**Choosing status conditions for the graphic, sorting the data:**

Clicking on the "Select status conditions" toolbar pushbutton" displays a follow up screen form in which you can edit the evaluation definitions. This allows you to specify, amongst other things, the status conditions that are to be displayed in the graphic and how the data is to be sorted.

**Updating the data:**

The graphic is updated on a cyclical basis if you check the "Update" box. Next to the box, you can specify the updating period in seconds.

The system stores these settings on a user-specific basis under the name that was entered in the login screen of the user interface.

You can also update the screen form at any time by clicking on the "OK" pushbutton or by pressing the Return key.

See also the Chapter entitled "Grouping Status Conditions" on page 1-2

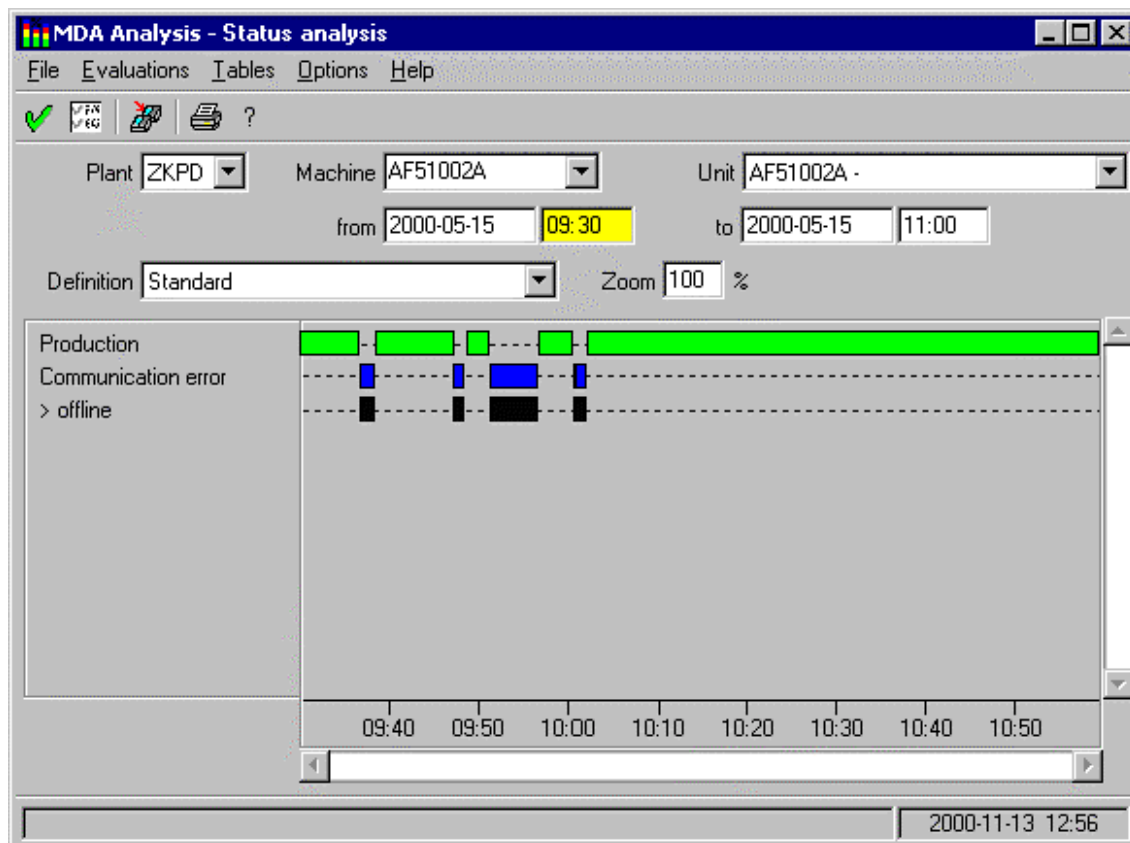
For the settings of the evaluation definition, see the Chapter entitled "Select Status Conditions for Analysis of Reason for Disturbance/Status Analysis" screen form on page 2-9

For a description of the different input options with date fields, refer to the Chapter entitled "Operator Inputs to Screen Forms" on page 1-3

## 2.3 "Status Analysis" Screen Form

Call from menu bar: "Evaluations → Status analysis"

The screen form shows you the course of status conditions for a specified period of time and for a selected machine or unit.



### Default setting of the screen form:

At display, the screen form contains the following default values:

- Plant, machine, unit: Preset machine and unit  
Note: Depending on the configuration, the system does not display the "unit" field.
- Period of time:  
On first displaying a screen form with period of time:  
From: Current instant - Configured default period  
To: Current instant + 30 minutes  
Otherwise:  
Period of time that was last selected in a screen form.
- Definition  
Name of the evaluation definition that is saved on a user-specific basis.
- Zoom: 100% or the value you used last
- Graphic: Data of the period of time

**Operator inputs in the screen form:**

In the screen form, you can

- choose a machine and possibly a unit in pick lists,
- specify a time range.
- set a zoom factor for the time axis.
- choose another evaluation definition and
- change the width of the legend by clicking and holding down the left mouse button on the right-hand edge of the legend and dragging it to the desired width.

**If the "Units" field is visible, the following applies:**

If you choose a single machine in the "Machine" pick list, the system displays in the "Units" pick list all the units of this machine.

If you choose the asterisk (\*) entry in the "Machine" pick list, the "Units" pick list shows all the units and all the machines of the current plant.

If you use wildcards to enter a filter in the "Machine" pick list (e.g. mill\*), the "Units" pick list shows the names of all the units and all the machines of the current plant that match the filter.

**Important!** The system only enters units in the unit list that match the "Machine" selection and for whose status group status conditions are selected in the chosen "evaluation definition".

If you choose another unit or change the time range, the graphic is deleted. The system displays the graphic with the current specified data when you click on the "OK" pushbutton or press the Return key.

**Contents of the graphic:**

The system only shows the status conditions that are selected in the evaluation definition for the status group of the chosen unit and whose minimum frequencies and minimum durations – totalled over the selected time range – are greater than or equal to the minimum values that are specified in the evaluation definition.

If the minimum frequency and minimum duration are set to zero, the system displays all the data.

If none of the status conditions meets the stipulations, a message is issued.

The system reads the data from the "Log" (table "SCHICHT\_APLZ").

If the current instant is displayed in the graphic, the system determines the currently pending status conditions and displays them in the graphic in addition to the status data in the log.

Status conditions that are smaller than one pixel in the graphic are suppressed and you can only see them when you zoom the time axis.

If status conditions are suppressed, the system displays on the message line the number of non-visible status conditions.

If it is not possible to display all the status conditions in the visible area of the graphic, you can use the vertical scroll bar to view the other status conditions.

Sub-status conditions are marked by a greater than character (>).

A maximum of 10,000 status conditions are read for one time range. If there are more status conditions in the time range, the system issues a message to this effect and displays only the first 10,000 status conditions.

**Zooming the time axis:**

Using the "Zoom" field, you can set the distribution of the time axis between 1% and 100%.

Using the "Up" and "Down" arrow keys, you can choose one of the preset values (100% - 75% - 50% - 25% - 10% - 1%). You can also type in a value between 1 and 100.

A zoom value of 10% means that the time axis takes 10% of the time range in the window.

The maximum distribution of the time axis is five minutes for the graphic that is displayed in the window. If you enter a zoom value that is too low, the system sets it to the lowest possible value for the current time range.

With zoom sizes below 100%, you can use the horizontal scrollbar to move the visible time range.

**Choosing status conditions for the graphic:**

Clicking on the "Select status conditions" toolbar pushbutton displays a follow up screen form in which you can edit the evaluation definitions. This allows you to specify, amongst other things, the status conditions that are to be displayed in the graphic.

**Updating the data:**

The graphic is updated on a cyclical basis if you check the "Update" box. Next to the box, you can specify the updating period in seconds.

The system stores these settings on a user-specific basis under the name that was entered in the login screen of the user interface.

You can also update the screen form at any time by clicking on the "OK" pushbutton or by pressing the Return key.

See also the Chapter entitled "Grouping Status Conditions" on page 1-2

For the settings of the evaluation definition, see the Chapter entitled "Select Status Conditions for Analysis of Reason for Disturbance/Status Analysis" screen form on page 2-9

For a description of the different input options with date fields, refer to the Chapter entitled "Operator Inputs to Screen Forms" on page 1-3



## 2.4 "Select Status Conditions for Analysis of Reason for Disturbance/Status Analysis" screen form

Call from menu bar: "Evaluations → Select status conditions"

You edit the evaluation definitions in this follow up screen form to screen forms "Analysis of Reason for Disturbance" and "Status Analysis".

### Default setting of the screen form:

At display, the screen form contains the following default values:

- Name of the evaluation definition.  
Name of the evaluation definition that is selected in screen form "Analysis of Reason for Disturbance" or "Status Analysis".
- Status group:  
The system displays the status group of the machine or unit that is selected in screen form "Analysis of Reason for Disturbance" or "Status Analysis".
- "Status conditions to be displayed" list:  
All the status conditions of the status group are entered in the list. The status conditions that are to be displayed in the graphic are checked.
- Minimum duration, minimum frequency, and sorting, etc.  
The values that are stored in the evaluation definition are displayed.

**Meanings of the screen form fields:**

You use this screen form to create several evaluation definitions.

In each evaluation definition, you specify, for each of the status groups that you are using, the status conditions that the system is to display in the "analysis of reason for disturbance" and "status analysis" graphics.

The "minimum duration" and "minimum frequency" stipulations allow you to specify that the system only displays status conditions in the graphic whose durations – totalled over the selected time range – are greater than or equal to the minimum duration defined here and whose frequencies are greater than or equal to the minimum frequency defined here.

You can specify for the "Current Data" evaluation time type whether you want to evaluate the "Log" table, which contains all the parallel pending status conditions, or the "Priolog" table with the highest priority status conditions:

- 'Display all status conditions':  
The system reads the data of the screen form from the "Log" table. If several status conditions were pending in-parallel at one instant, the system considers all these status conditions in the evaluation.
- 'Highest priority status conditions only':  
The system reads the data of the screen form from the "Priolog" table. This table always contains at every instant exactly the highest priority status. Parallel status conditions cannot occur here. Using the "For status analysis (Gantt diagram)" pick list, you specify whether
- You want to use a separate row with its own bar in the graphic for each defined status or
- You want to use exactly one row per machine in which all the status bars are entered.  
This representation is particularly advisable with the "Status analysis for evaluation groups" evaluation, since it is possible to display a lot of machines in the overview.  
In the "For analysis of reason for disturbance: Sorted by ..." pick list you specify how the data is sorted in the "Analysis of reason for disturbance" graphic. There are four sorting criteria to choose from:
- 'Status numbers'
- 'Status designations' - alphabetical list of status names
- 'Duration'
- 'Frequency'

**Operator inputs in the screen form:**

If you change the choice of status conditions for a status group or the minimum duration or minimum frequency, you cannot leave the screen form or choose other status groups and evaluation definitions until you have first saved your changes by clicking on "OK" or rejected them by clicking on "Cancel".

In the list you select/deselect the individual status conditions as follows:

- By clicking on the check box next to the status text.
- By clicking on the status text of the currently selected status.
- By selecting a status either by clicking on it or using the Up or Down cursor keys and then pressing the space bar.
- Clicking on the 'Select/deselect all rows' pushbutton toggles whether all the status conditions in the list are marked with a checkmark or not.
- By pressing the toggle key. On a PC keyboard, this is in the middle of the numeric keypad (the '5' key when NUMLOCK is not activated).

You can also delete evaluation definitions that are no longer needed. The system deletes the evaluation definition with all the status groups.

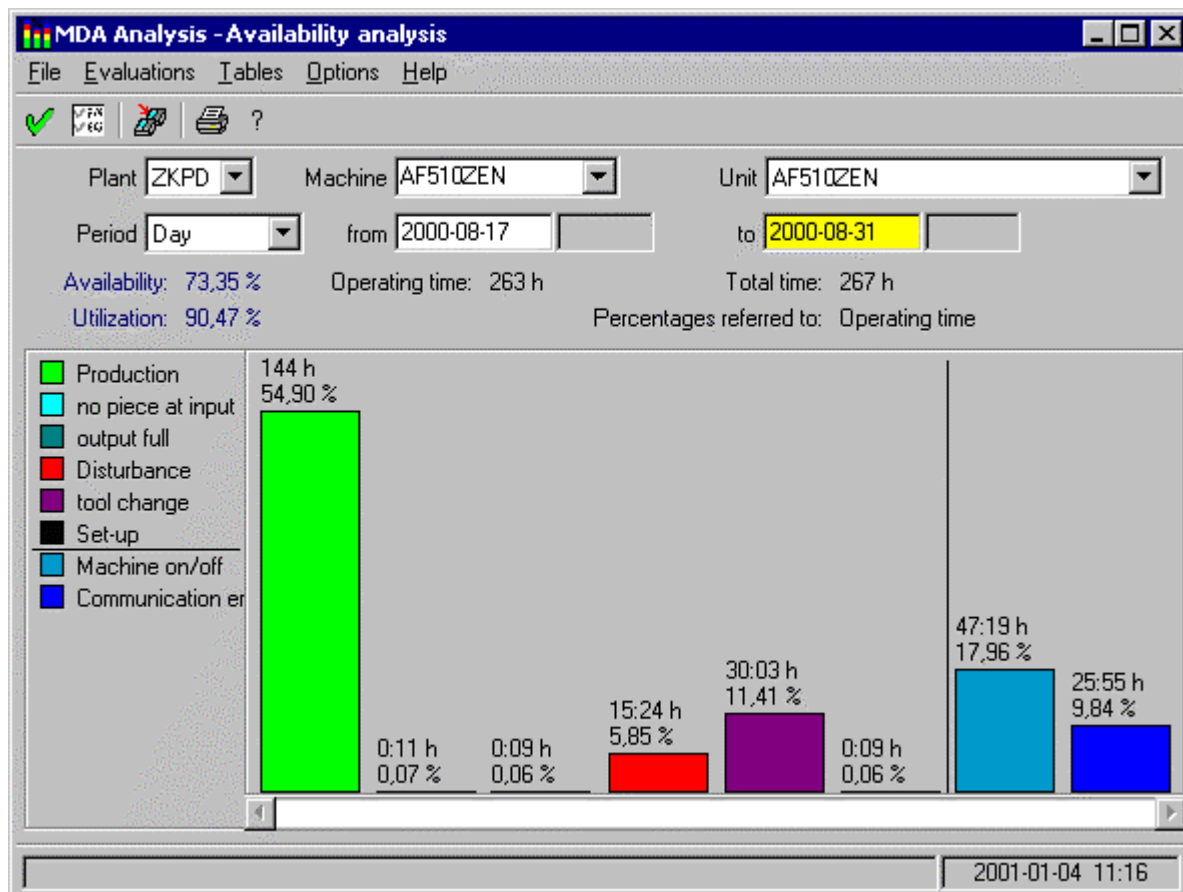
**Pushbuttons in the screen form:**

- 'Save changes' Saves the settings
- 'Reject changes' Rejects the changes
- 'Select/deselect all rows' Checks all the status conditions in the list or clears them
- 'Delete' Deletes the evaluation definition
- 'One form back' Clears the sub screen form

## 2.5 "Availability Analysis" Screen Form

Call from menu bar: "Evaluations → Availability Analysis"

The screen form shows you for a specified period of time and a selected unit the duration of main status conditions as well as the total availability and rate of utilization of the machine over this period of time.



### Default setting of the screen form:

At display, the screen form contains the following default values:

- Plant, machine, unit: Preset machine/unit  
Note: Depending on the configuration, the system does not display the "unit" field.
- Period of time:  
On first displaying a screen form with period of time:  
From: Current instant - Configured default period  
To: Current instant + 30 minutes  
Otherwise:  
Period of time that was last selected in a screen form.
- Graphic: Data of the period of time

**Operator inputs in the screen form:**

In the screen form, you can

- choose a machine in pick lists,
- specify a time type and a time range and
- change the width of the legend by clicking and holding down the left mouse button on the right-hand edge of the legend and dragging it to the desired width.

If it is not possible to display all the status conditions in the visible area of the graphic, you can use the horizontal scroll bar to view the other status conditions.

If you choose another machine or change the time range, the graphic is deleted. The system displays the graphic with the current specified data when you click on the "OK" pushbutton or press the Return key.

**Time types:**

In MDA, the statistical data is stored in different degrees of compression:

- **'Current'** - Current log  
This contains the latest status conditions and goes back a fixed number of entries into the past. You specify the maximum number of entries in the log by means of configuration.
- **'Shift'** - Compression for shifts  
The system stores the total times of the status conditions per unit for every shift. You specify the number of shifts in shift compression by means of configuration.
- **'Day'** - Compression for days  
The system stores the total times of the status conditions per unit for every day. You specify the number of days in day compression by means of configuration.
- **'Month'** - Compression for months  
The system stores the total times of the status conditions per unit for every month. You specify the number of months in month compression by means of configuration.
- **'Year'** - Compression for years  
The system stores the total times of the status conditions per unit for every year. You specify the number of years in year compression by means of configuration.

Using the "Time types" pick list, you can choose the current log ("Current") or a compression range ("Shift", "Day", "Month", "Year").

The following only applies to time type "**Current**":

If the current instant is displayed in the graphic, the system determines the currently pending status condition with the highest priority and includes it in the statistical calculation in addition to the status data. In the case of "Current" the system ignores the time types that are in the "Parameterization of availability" screen form (Working Time, Break, etc.) In this case, the system always takes the total duration of the status!

The following applies to the "**Shift**" period of time:

In "From", you enter the date and shift number where you want the evaluation to start.

In "To", you enter the date and shift number where you want the evaluation to end.

In the "Shifts" field, you can enter the shift numbers separated by commas that you want the system to use.

The following applies to the "**Day**" period of time:

In the "Days of the week" field, you can enter the days of the week separated by commas that you want the system to use.

**Explanations of the data in the screen form:**

- **Legend and graphic:**

In the legend, the status conditions are sorted from top to bottom in the same way as the system displays them from right to left in the graphic. You can change how the main status conditions are sorted in the "Parameterization of availability" screen form.

In the availability analysis, the system only displays the main status conditions. The acquired data of the sub-status conditions is added to the main status conditions.

- **Bar labels:**

The system outputs above each bar the duration of the status in the selected time range. Below this, there is a display of the time's percentage share of the "operating time".

**Configuring the graphic:**

You carry out configuration for calculating the availability and rate of utilization on the Customizing (User) user interface.

For information on calculating the availability and rate of utilization, refer to the Chapter entitled "Calculating the OEE Distinctive Numbers" on page 2-35

**Updating the data:**

The graphic is updated on a cyclical basis if you check the "Update" box. Next to the box, you can specify the updating period in seconds.

The system stores these settings on a user-specific basis under the name that was entered in the login screen of the user interface.

You can also update the screen form at any time by clicking on the "OK" pushbutton or by pressing the Return key.

See also the Chapter entitled "Grouping Status Conditions" on page 1-2

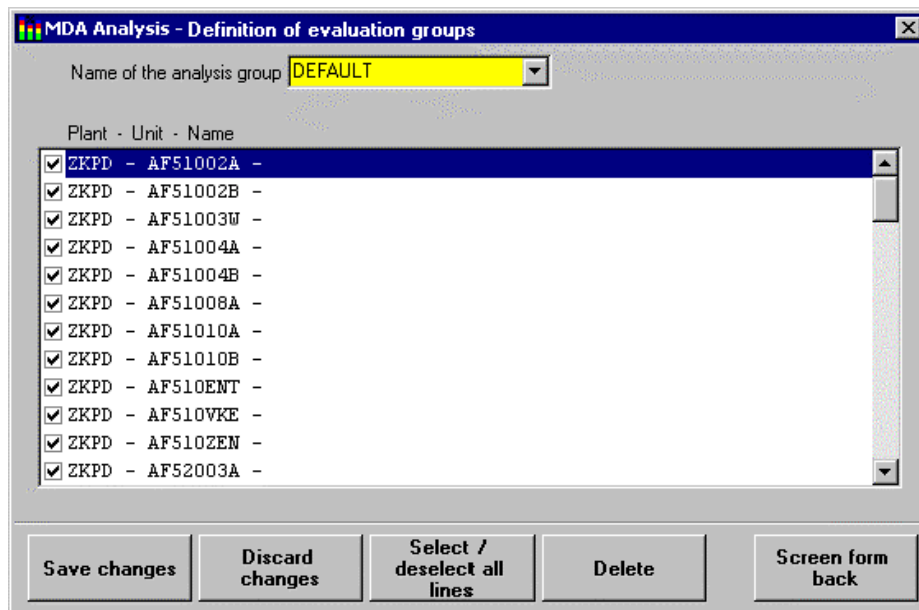
For the settings of the evaluation definition, see the Chapter entitled "Select Status Conditions for Analysis of Reason for Disturbance/Status Analysis" screen form on page 2-9

For a description of the different input options with date fields, refer to the Chapter entitled "Operator Inputs to Screen Forms" on page 1-3

## 2.6 Definition of Evaluation Groups

Call from menu bar: "Evaluations → Evaluation groups"

For evaluations, you can group machines and units into evaluation groups. In evaluations "Analysis of reason for disturbance for evaluation group", "Status analysis for evaluation group", etc., the system represents all the machines and units of an evaluation group in a clear diagram.



### Default setting of the screen form:

At display, the screen form contains the following default values:

- Name of evaluation group: The evaluation group that is currently in use
- List with units:  
All the defined machines and units.  
The machines/units that belong to the evaluation group have checkmarks.

### Operator inputs to screen form:

If you change the selected units for an evaluation group, you cannot exit the screen form or choose another evaluation group until you have saved or rejected your changes.

In the list you select/deselect the individual units as follows:

- By clicking on the check box next to the unit.
- By clicking on the row of the currently selected unit.
- By selecting a unit either by clicking on it or using the Up or Down cursor keys and then pressing the space bar.
- By clicking on the "Select/deselect all rows" pushbutton, which toggles whether all the units in the list are marked with a checkmark or not.
- By pressing the toggle key. On a PC keyboard, this is in the middle of the numeric keypad (the '5' key when NUMLOCK is not activated).

**Pushbuttons in the screen form:**

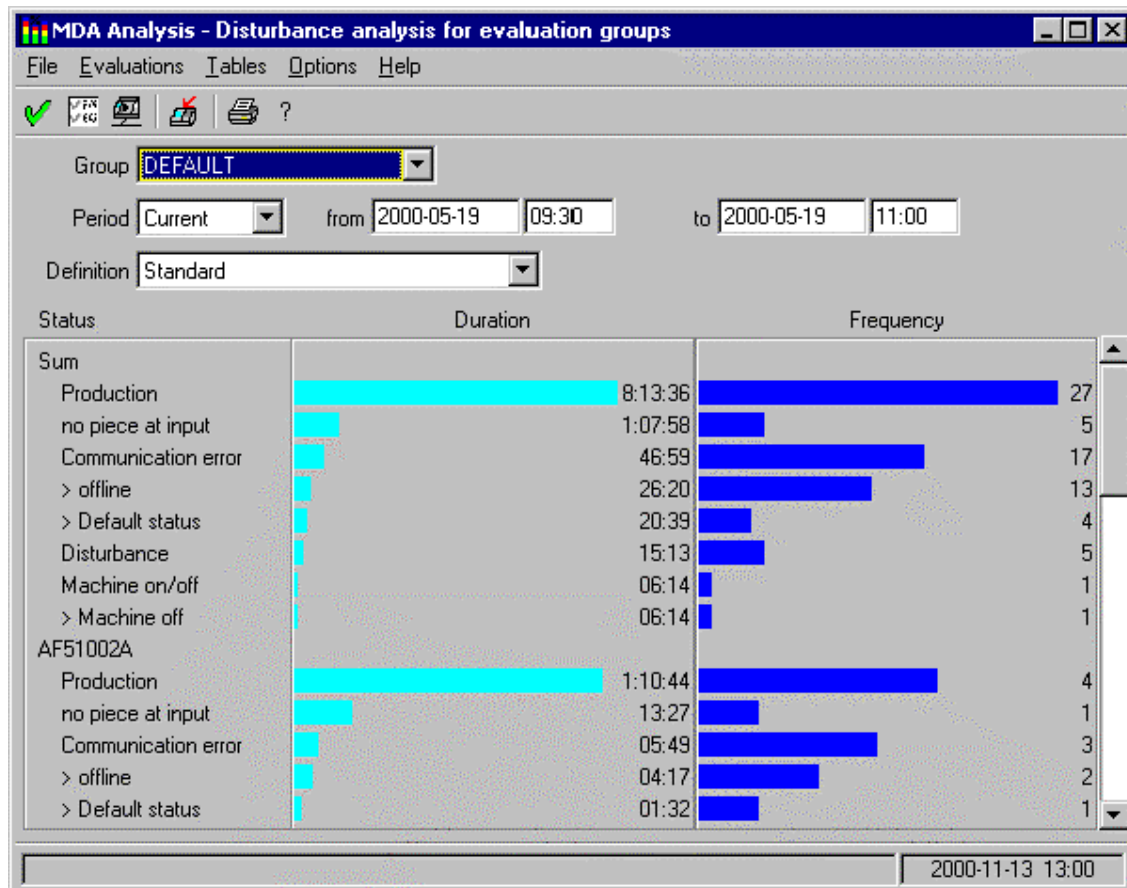
- 'Save changes' Saves the settings
- 'Reject changes' Rejects the changes
- 'Select/deselect all rows' Checks all the units in the list or clears them
- 'Delete' Deletes the evaluation group
- 'One form back' Clears the sub screen form



## 2.7 Analysis of Reason for Disturbance for Evaluation Groups

Call from menu bar: "Evaluations → Analysis of reason for disturbance for evaluation groups"

The screen form shows you for a specified period of time and for the machines/units of an evaluation group the status conditions that occurred, their durations and their frequencies.



### Default setting of the screen form:

At display, the screen form contains the following default values:

- Group: Evaluation group that is currently in use
- Period of time:
  - On first displaying a screen form with period of time:
    - From: Current instant - Configured default period
    - To: Current instant + 30 minutes
  - Otherwise:
    - Period of time that was last selected in a screen form.
- Definition
  - Name of the saved evaluation definition.
- Graphic: Data of the period of time or blank

**Operator inputs in the screen form:**

In the screen form, you can

- use pick lists to choose an evaluation group and an evaluation definition,
- specify a time range and
- change the width of the legend by clicking and holding down the left mouse button on the right-hand edge of the legend and dragging it to the desired width.

**Time types:**

In MDA, the statistical data is stored in different degrees of compression:

- **'Current'** - Current log  
This contains the latest status conditions and goes back a fixed number of entries into the past. You specify the maximum number of entries in the log by means of configuration. The system reads the data from the "Log" (table "SCHICHT\_APLZ").
- **'Shift'** - Compression for shifts  
The system stores the total times of the status conditions per unit for every shift. You specify the number of shifts in shift compression by means of configuration.
- **'Day'** - Compression for days  
The system stores the total times of the status conditions per unit for every day. You specify the number of days in day compression by means of configuration.
- **'Month'** - Compression for months  
The system stores the total times of the status conditions per unit for every month. You specify the number of months in month compression by means of configuration.
- **'Year'** - Compression for years  
The system stores the total times of the status conditions per unit for every year. You specify the number of years in year compression by means of configuration.

Using the "Period of time" pick list, you can choose the current log ("Current") or a compression range ("Shift", "Day", "Month", "Year").

The following applies to the **"Shift"** period of time:

In "From", you enter the date and shift number where you want the evaluation to start.

In "To", you enter the date and shift number where you want the evaluation to end.

In the "Shifts" field, you can enter the shift numbers separated by commas that you want the system to use.

The following applies to the **"Day"** period of time:

In the "Days of the week" field, you can enter the days of the week separated by commas that you want the system to use.

**Contents of the graphic:**

Initially, the system outputs a section called "Total" that contains the displayed status conditions of all the machines and units below it as well as the respective totals for "Duration" and "Frequency".

The total bars are formatted on a special scale such that the longest bar for duration and frequency stretches across the entire width in each case.

For the bars of the individual machines and units below it, you choose another scale such that the longest bar for duration and frequency stretches across the entire width there.

The individual machines and units are output below one another. A machine's or unit's section starts in the left-hand "Status" field with the designation of the machine or unit.

The system only shows the status conditions that are selected in the evaluation definition for the status group of each unit and whose minimum frequencies and minimum durations are greater than or equal to the minimum values that are specified in the evaluation definition.

If the minimum frequency and minimum duration are set to zero, the system displays all the data.

If none of the status conditions meets the stipulations, a message is issued.

The following applies to time type "Current" only: If the current instant is displayed in the graphic, the system determines the currently pending status conditions and includes them in the statistical calculation in addition to the status data in the log.

If it is not possible to display all the status conditions in the visible area of the graphic, you can use the vertical scroll bar to view the other status conditions.

Sub-status conditions are marked by a greater than character (>).

**Choosing status conditions for the graphic, sorting the data:**

Clicking on the "Select status conditions" toolbar pushbutton" displays a follow up screen form in which you can edit the evaluation definitions. This allows you to specify, amongst other things, the status conditions that are to be displayed in the graphic and how the data is to be sorted.

**Updating the data:**

The graphic is updated on a cyclical basis if you check the "Update" box. Next to the box, you can specify the updating period in seconds.

The system stores these settings on a user-specific basis under the name that was entered in the login screen of the user interface.

You can also update the screen form at any time by clicking on the "OK" pushbutton or by pressing the Return key.

See also the Chapter entitled "Grouping Status Conditions" on page 1-2

For the settings of the evaluation definition, see the Chapter entitled "Select Status Conditions for Analysis of Reason for Disturbance/Status Analysis" screen form on page 2-9

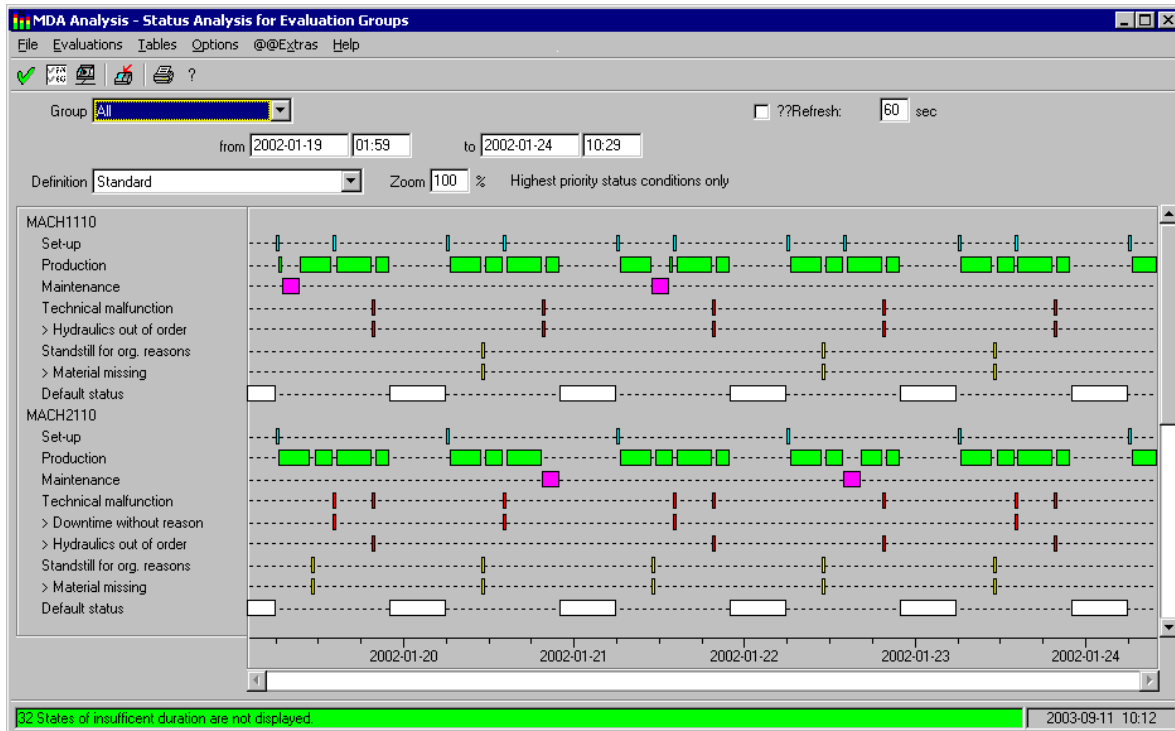
For definition of the evaluation groups, see the Chapter entitled "Definition of Evaluation Groups" on page 2-15

For a description of the different input options with date fields, refer to the Chapter entitled "Operator Inputs to Screen Forms" on page 1-3

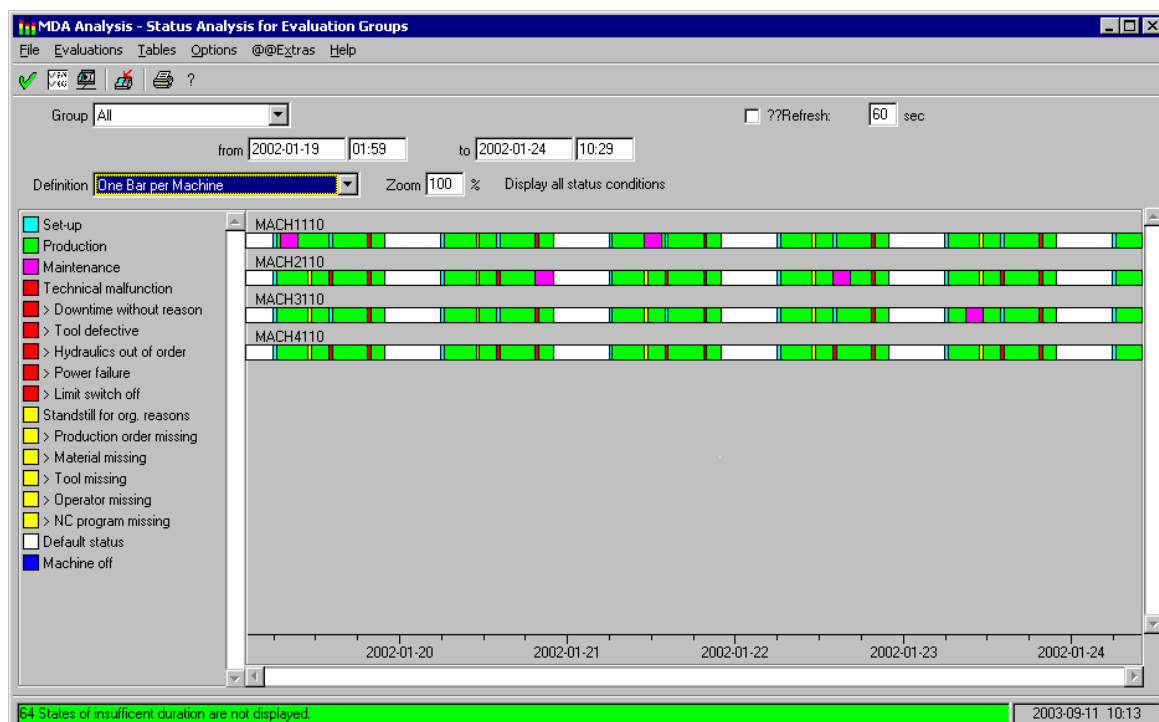
## 2.8 Status Analysis for Evaluation Groups

Call from menu bar: "Evaluations → Status analysis for evaluation groups"

The screen form shows you the course of status conditions for a specified period of time and for the machines/units of an evaluation group.



Depending on the settings in follow up screen form "Select status conditions", you can output the graphic with one bar per station too:



**Default setting of the screen form:**

At display, the screen form contains the following default values:

- Group: Evaluation group that is currently in use
- Period of time:
  - On first displaying a screen form with period of time:
    - From: Current instant - Configured default period
    - To: Current instant + 30 minutes
  - Otherwise:
    - Period of time that was last selected in a screen form.
- Definition: Name of the saved evaluation definition
- Zoom: 100% or the value you used last
- Graphic: Data of the period of time

**Operator inputs in the screen form:**

In the screen form, you can

- use pick lists to choose an evaluation group and an evaluation definition,
- specify a time range.
- set a zoom factor for the time axis and
- change the width of the legend by clicking and holding down the left mouse button on the right-hand edge of the legend and dragging it to the desired width.

If you choose another evaluation group or change the time range, the graphic is deleted. The system displays the graphic with the current specified data when you click on the "OK" pushbutton or press the Return key.

**Contents of the graphic:**

Using follow up screen form "Select status conditions", you specify whether you want to output on a per status basis a row containing the bars of the status or whether you want to display all the station's status conditions on one row.

**Display type "Output one bar per status":**

The individual machines and units are output under one another; the system uses a separate row in the graphic for each status. A machine's or unit's section starts in the legend with the designation of the machine or unit.

**Display type "Output one bar per station":**

The individual machines and units are output below one another. The system uses a single row for each station. The designation of the machine or unit is located above this row.

This representation is particularly suitable if you want to get an overview of the status history of a lot of stations.

The system only shows the status conditions that are selected in the evaluation definition for the status group of each unit and whose minimum frequencies and minimum durations – totalled over the selected time range – are greater than or equal to the minimum values that are specified in the evaluation definition.

If the minimum frequency and minimum duration are set to zero, the system displays all the data.

If none of the status conditions meets the stipulations, a message is issued.

The system reads the data from the "Log" (table "SCHICHT\_APLZ").

If the current instant is displayed in the graphic, the system determines the currently pending status conditions and displays them in the graphic in addition to the status data in the log.

Status conditions that are smaller than one pixel in the graphic are suppressed and you can only see them when you zoom the time axis.

If status conditions are suppressed, the system displays on the message line the number of non-visible status conditions.

If it is not possible to display all the status conditions in the visible area of the graphic, you can use the vertical scroll bar to view the other status conditions.

Sub-status conditions are marked by a greater than character (>).

A maximum of 10,000 status conditions are read for one time range. If there are more status conditions in the time range, the system issues a message to this effect and displays only the first 10,000 status conditions.

#### **Zooming the time axis:**

Using the "Zoom" field, you can set the distribution of the time axis between 1% and 100%.

Using the "Up" and "Down" arrow keys, you can choose one of the preset values (100% - 75% - 50% - 25% - 10% - 1%). You can also type in a value between 1 and 100.

A zoom value of 10% means that the time axis takes 10% of the time range in the window.

The maximum distribution of the time axis is five minutes for the graphic that is displayed in the window. If you enter a zoom value that is too low, the system sets it to the lowest possible value for the current time range.

With zoom sizes below 100%, you can use the horizontal scrollbar to move the visible time range.

#### **Choosing status conditions for the graphic:**

Clicking on the "Select status conditions" toolbar pushbutton displays a follow up screen form in which you can edit the evaluation definitions. This allows you to specify, amongst other things, the status conditions that are to be displayed in the graphic.

#### **Updating the data:**

The graphic is updated on a cyclical basis if you check the "Update" box. Next to the box, you can specify the updating period in seconds.

The system stores these settings on a user-specific basis under the name that was entered in the login screen of the user interface.

You can also update the screen form at any time by clicking on the "OK" pushbutton or by pressing the Return key.

See also the Chapter entitled "Grouping Status Conditions" on page 1-2

For the settings of the evaluation definition, see the Chapter entitled "Select Status Conditions for Analysis of Reason for Disturbance/Status Analysis" screen form on page 2-9

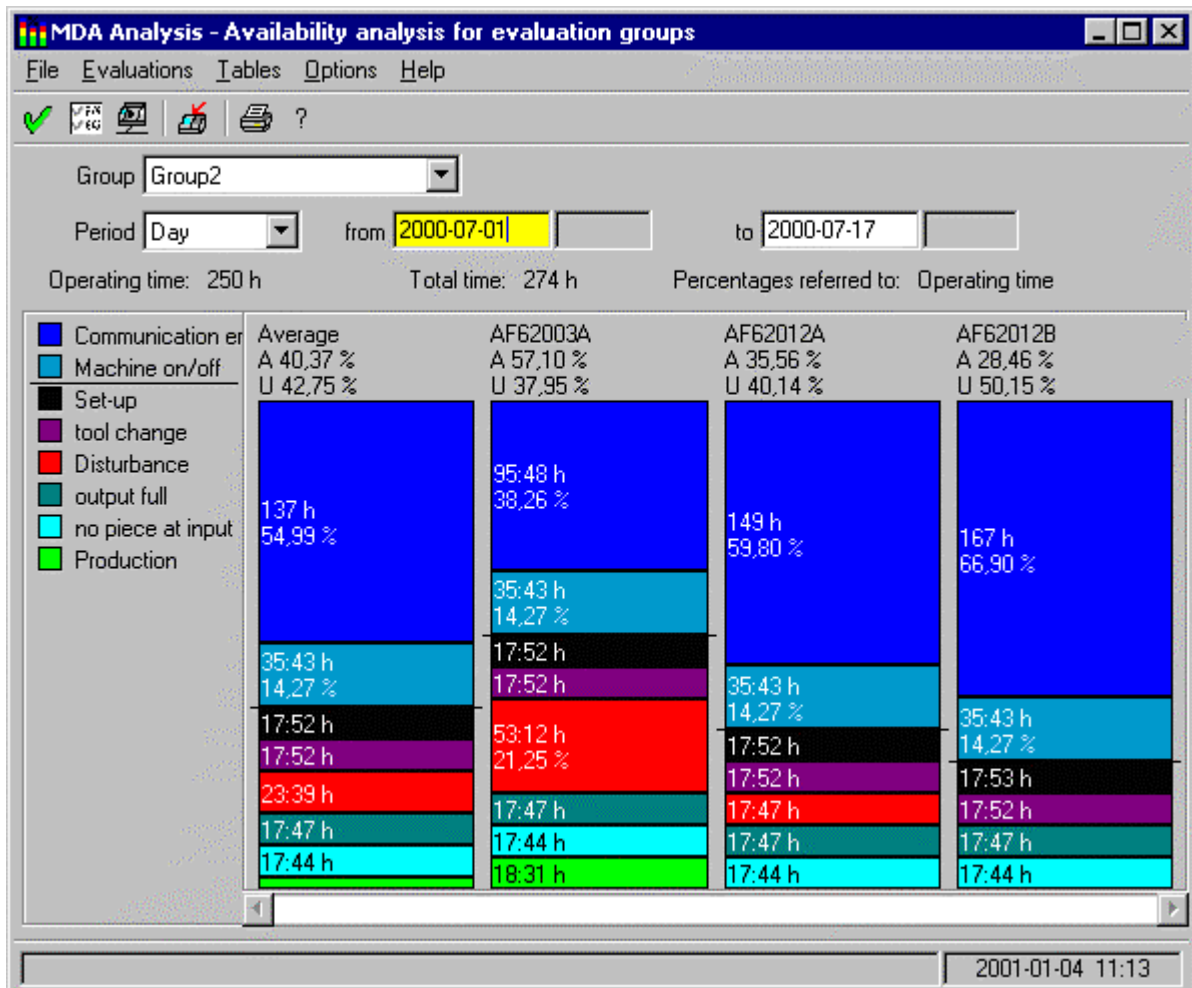
For definition of the evaluation groups, see the Chapter entitled "Definition of Evaluation Groups" on page 2-15

For a description of the different input options with date fields, refer to the Chapter entitled "Operator Inputs to Screen Forms" on page 1-3

## 2.9 Availability Analysis for Evaluation Groups

Call from menu bar: "Evaluations → Availability analysis for evaluation groups"

The screen form shows you for a specified period of time and the machines/units of an evaluation group the duration of main status conditions as well as the availability and rate of utilization of each machine or unit over this period of time.



### Default setting of the screen form:

At display, the screen form contains the following default values:

- Group: Evaluation group that is currently in use
- Period of time:
  - On first displaying a screen form with period of time:
    - From: Current instant - Configured default period
    - To: Current instant + 30 minutes
  - Otherwise:
    - Period of time that was last selected in a screen form.
- Graphic: Blank

**Operator inputs in the screen form:**

In the screen form, you can

- use the pick list to choose an evaluation group,
- specify a time type and a time range and
- change the width of the legend by clicking and holding down the left mouse button on the right-hand edge of the legend and dragging it to the desired width.

If the system cannot show all the machines and units of the evaluation group in the visible area of the graphic, you can use the horizontal scrollbar to scroll to the other bars.

If you choose another evaluation group or change the time range, the graphic is deleted. The system displays the graphic with the current specified data after you click on the "OK" pushbutton or press the Return key.

**Time types:**

In MDA, the statistical data is stored in different degrees of compression:

- **'Current'** - Current log  
This contains the latest status conditions and goes back a fixed number of entries into the past. You specify the maximum number of entries in the log by means of configuration.
- **'Shift'** - Compression for shifts  
The system stores the total times of the status conditions per unit for every shift. You specify the number of shifts in shift compression by means of configuration.
- **'Day'** - Compression for days  
The system stores the total times of the status conditions per unit for every day. You specify the number of days in day compression by means of configuration.
- **'Month'** - Compression for months  
The system stores the total times of the status conditions per unit for every month. You specify the number of months in month compression by means of configuration.
- **'Year'** - Compression for years  
The system stores the total times of the status conditions per unit for every year. You specify the number of years in year compression by means of configuration.

Using the "Time types" pick list, you can choose the current log ("Current") or a compression range ("Shift", "Day", "Month", "Year").

The following only applies to time type **"Current"**:

If the current instant is displayed in the graphic, the system determines the currently pending status condition with the highest priority and includes it in the statistical calculation in addition to the status data. In the case of "Current" the system ignores the time types that are in the "Parameterization of availability" screen form (Working Time, Break, etc.) In this case, the system always takes the total duration of the status!

The following applies to the **"Shift"** period of time:

In "From", you enter the date and shift number where you want the evaluation to start.

In "To", you enter the date and shift number where you want the evaluation to end.

In the "Shifts" field, you can enter the shift numbers separated by commas that you want the system to use.

The following applies to the **"Day"** period of time:

In the "Days of the week" field, you can enter the days of the week separated by commas that you want the system to use.



**Explanations of the data in the screen form:**

- **Legend and graphic:**

In the legend, the status conditions are sorted from top to bottom in the same way as the system displays them from right to left in the graphic. You can change how the main status conditions are sorted in the "Parameterization of availability" screen form.

In the availability analysis, the system only displays the main status conditions. The acquired data of the sub-status conditions is added to the main status conditions.

- **"Average" bar:**

The bar shows the average values of the status conditions.

This bar only shows reasonable values if all the machines in the graphic belong to the same status group.

The system only takes into account the status conditions that are displayed in the legend (these are the status conditions of the first machine).

If machines from different status classes are displayed, the system only takes into account the status conditions of the machines that belong to another status class that are present in the legend.

When forming the average values, the system does not count machines whose status was not considered.

- **Bar labels:**

The system outputs above each bar the availability "V" and the rate of utilization "A" of the machine or unit in the selected time range.

If the bar is high enough, the system displays in each sub-bar the time duration of the bar and below this the percentage share of the "Operating Time".

The system outputs above the graphic the operating time of the ***first machine that is displayed on the left.***

**Configuring the graphic:**

You carry out configuration for calculating the availability and rate of utilization on the Customizing (User) user interface.

For information on calculating the availability and rate of utilization, refer to the Chapter entitled "Calculating the OEE Distinctive Numbers" on page 2-35

**Updating the data:**

The graphic is updated on a cyclical basis if you check the "Update" box. Next to the box, you can specify the updating period in seconds.

The system stores these settings on a user-specific basis under the name that was entered in the login screen of the user interface.

You can also update the screen form at any time by clicking on the "OK" pushbutton or by pressing the Return key.

See also the Chapter entitled "Grouping Status Conditions" on page 1-2

For information on calculating OEE distinctive numbers, refer to the Chapter entitled "OEE Distinctive Numbers" Screen Form on page 2-32

For definition of the evaluation groups, see the Chapter entitled "Definition of Evaluation Groups" on page 2-15

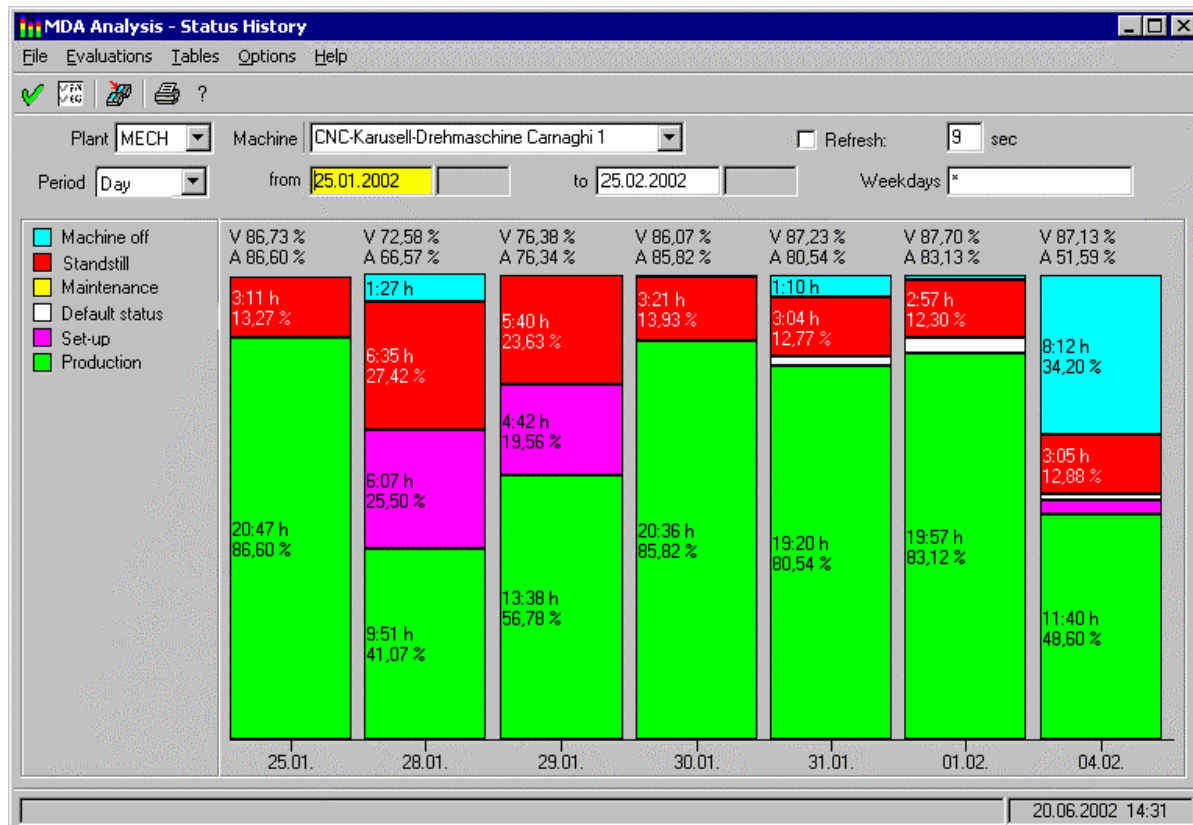
For a description of the different input options with date fields, refer to the Chapter entitled "Operator Inputs to Screen Forms" on page 1-3

## 2.10 History of Status Conditions

Call from menu bar: "Evaluations → History of status conditions"

Call from menu bar: "Evaluations → History of status conditions for evaluation groups"

The screen form shows you for a machine, a unit or an evaluation group the history of main status conditions as well as the distinctive numbers for the availability and rate of utilization over a specified period of time.



### Default setting of the screen form:

At display, the screen form contains the following default values:

- Plant, machine, unit: Preset machine/unit  
Note: Depending on the configuration, the system does not display the "unit" field.
- Group: Evaluation group that is currently in use
- Period of time:  
On first displaying a screen form with period of time:  
From: Current instant - Configured default period  
To: Current instant + 30 minutes  
Otherwise:  
Period of time that was last selected in a screen form.
- Graphic: Blank

**Operator inputs in the screen form:**

In the screen form, you can

- use pick lists to choose a machine or an evaluation group,
- specify a time type and a time range and
- change the width of the legend by clicking and holding down the left mouse button on the right-hand edge of the legend and dragging it to the desired width.

The width of the bars is based on the number of bars (time periods) and the width of the window. With narrow bars, the system rounds the numbers or omits them altogether.

If you choose another evaluation group or change the time range, the graphic is deleted. The system displays the graphic with the current specified data after you click on the "OK" pushbutton or press the Return key.

**Time types:**

In MDA, the statistical data is stored in different degrees of compression:

- **'Current'** - Current log  
This contains the latest status conditions and goes back a fixed number of entries into the past. You specify the maximum number of entries in the log by means of configuration. In this graphic, the system outputs the data of the "Current" time range: this output is always **compressed to days**.
- **'Shift'** - Compression for shifts  
The system stores the total times of the status conditions per unit for every shift. You specify the number of shifts in shift compression by means of configuration.
- **'Day'** - Compression for days  
The system stores the total times of the status conditions per unit for every day. You specify the number of days in day compression by means of configuration.
- **'Month'** - Compression for months  
The system stores the total times of the status conditions per unit for every month. You specify the number of months in month compression by means of configuration.
- **'Year'** - Compression for years  
The system stores the total times of the status conditions per unit for every year. You specify the number of years in year compression by means of configuration.

Using the "Time types" pick list, you can choose the current log ("Current") or a compression range ("Shift", "Day", "Month", "Year").

The following only applies to time type **"Current"**:

If the current instant is displayed in the graphic, the system determines the currently pending status condition with the highest priority and includes it in the statistical calculation in addition to the status data. In the case of "Current" the system ignores the time types that are in the "Parameterization of availability" screen form (Working Time, Break, etc.) In this case, the system always takes the total duration of the status!

The following applies to the **"Shift"** period of time:

In "From", you enter the date and shift number where you want the evaluation to start.

In "To", you enter the date and shift number where you want the evaluation to end.

In the "Shifts" field, you can enter the shift numbers separated by commas that you want the system to use.

The following applies to the **"Day"** period of time:

In the "Days of the week" field, you can enter the days of the week separated by commas that you want the system to use.

**Explanations of the data in the screen form:**

- **Legend and graphic:**

In the legend, the main status conditions of the **selected machine** or of the **first machine of the evaluation group** are entered sorted in exactly the same way as in the machine's bar.

The system only displays the main status conditions. The acquired data of the sub-status conditions is added to the main status conditions.

- **Bar labels:**

The system outputs above each bar the availability "V" and the rate of utilization "A" of the machine or the average value of all the machines of an evaluation group in the time range.

If the bar is high enough, the system displays in each sub-bar the average time duration of the bar and below this the percentage share of the "Operating Time".

**Configuring the graphic:**

You carry out configuration for calculating the availability and rate of utilization on the Customizing (User) user interface.

For information on calculating the availability and rate of utilization, refer to the Chapter entitled "Calculating the OEE Distinctive Numbers" on page 2-35

**Updating the data:**

The graphic is updated on a cyclical basis if you check the "Update" box. Next to the box, you can specify the updating period in seconds.

The system stores these settings on a user-specific basis under the name that was entered in the login screen of the user interface.

You can also update the screen form at any time by clicking on the "OK" pushbutton or by pressing the Return key.

For information on calculating OEE distinctive numbers, refer to the Chapter entitled "'OEE Distinctive Numbers" Screen Form" on page 2-32

For definition of the evaluation groups, see the Chapter entitled "Definition of Evaluation Groups" on page 2-15

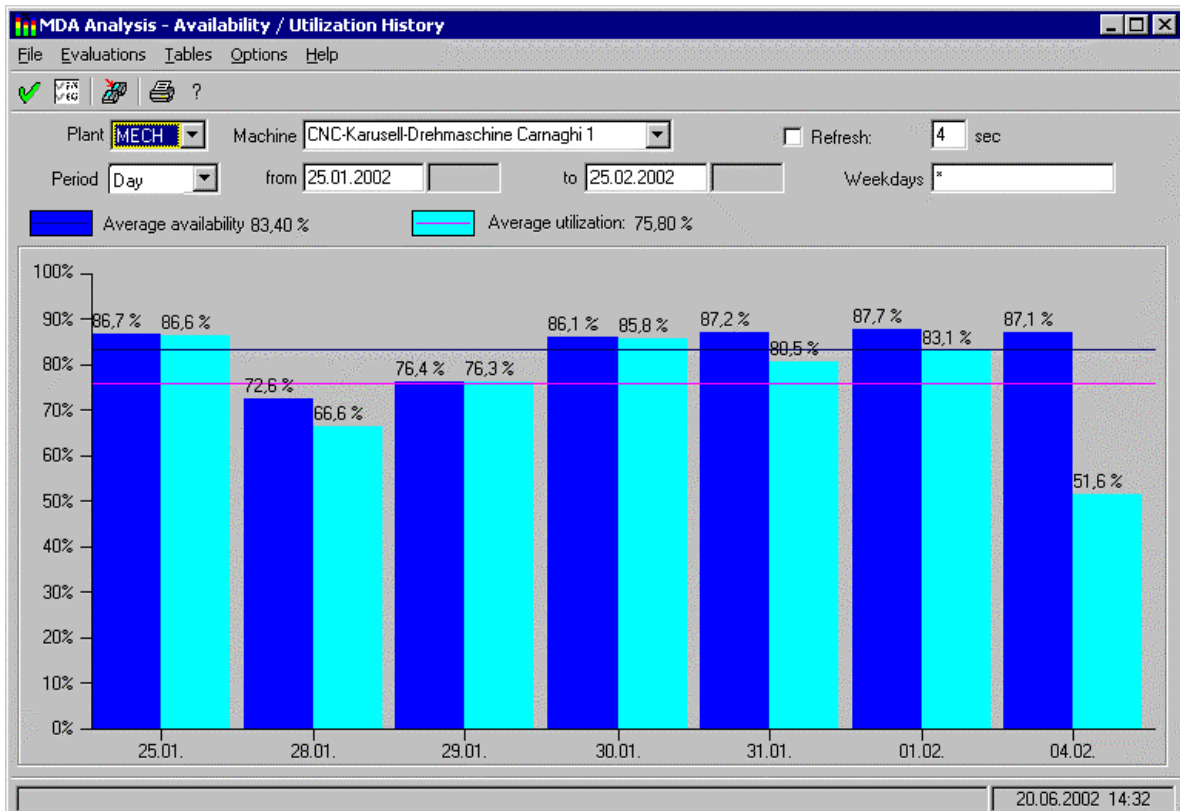
For a description of the different input options with date fields, refer to the Chapter entitled "Operator Inputs to Screen Forms" on page 1-3

## 2.11 History of Availability/Rate of Utilization

Call from menu bar: "Evaluations → History of availability/rate of utilization"

Call from menu bar: "Evaluations → History of availability for evaluation groups"

The screen form shows you for a machine, a unit or an evaluation group the history of the availability and rate of utilization over a specified period of time.



### Default setting of the screen form:

At display, the screen form contains the following default values:

- Plant, machine, unit: Preset machine/unit  
Note: Depending on the configuration, the system does not display the "unit" field.
- Group: Evaluation group that is currently in use
- Period of time:  
On first displaying a screen form with period of time:  
From: Current instant - Configured default period  
To: Current instant + 30 minutes  
Otherwise:  
Period of time that was last selected in a screen form.
- Graphic: Blank

**Operator inputs in the screen form:**

In the screen form, you can

- use pick lists to choose a machine or an evaluation group and
- specify a time type and a time range.

The width of the bars is based on the number of bars (time periods) and the width of the window. With narrow bars, the system rounds the numbers or omits them altogether.

If you choose another evaluation group or change the time range, the graphic is deleted. The system displays the graphic with the current specified data after you click on the "OK" pushbutton or press the Return key.

**Time types:**

In MDA, the statistical data is stored in different degrees of compression:

- **'Current'** - Current log  
This contains the latest status conditions and goes back a fixed number of entries into the past. You specify the maximum number of entries in the log by means of configuration. In this graphic, the system outputs the data of the "Current" time range: this output is always **compressed to days**.
- **'Shift'** - Compression for shifts  
The system stores the total times of the status conditions per unit for every shift. You specify the number of shifts in shift compression by means of configuration.
- **'Day'** - Compression for days  
The system stores the total times of the status conditions per unit for every day. You specify the number of days in day compression by means of configuration.
- **'Month'** - Compression for months  
The system stores the total times of the status conditions per unit for every month. You specify the number of months in month compression by means of configuration.
- **'Year'** - Compression for years  
The system stores the total times of the status conditions per unit for every year. You specify the number of years in year compression by means of configuration.

Using the "Time types" pick list, you can choose the current log ("Current") or a compression range ("Shift", "Day", "Month", "Year").

The following only applies to time type **"Current"**:

If the current instant is displayed in the graphic, the system determines the currently pending status condition with the highest priority and includes it in the statistical calculation in addition to the status data. In the case of "Current" the system ignores the time types that are in the "Parameterization of availability" screen form (Working Time, Break, etc.) In this case, the system always takes the total duration of the status!

The following applies to the **"Shift"** period of time:

In "From", you enter the date and shift number where you want the evaluation to start.

In "To", you enter the date and shift number where you want the evaluation to end.

In the "Shifts" field, you can enter the shift numbers separated by commas that you want the system to use.

The following applies to the **"Day"** period of time:

In the "Days of the week" field, you can enter the days of the week separated by commas that you want the system to use.

**Explanations of the data in the screen form:**

The system outputs above each bar the availability or the rate of utilization of the machine or the average value of all the machines of an evaluation group in the time range.

The system displays the average availability as well as the average rate of utilization over the entire time range above the graphic as numeric values and it displays them in the graphic as horizontal lines.

**Configuring the graphic:**

You carry out configuration for calculating the availability and rate of utilization on the Customizing (User) user interface.

For information on calculating the availability and rate of utilization, refer to the Chapter entitled "Calculating the OEE Distinctive Numbers" on page 2-35

**Updating the data:**

The graphic is updated on a cyclical basis if you check the "Update" box. Next to the box, you can specify the updating period in seconds.

The system stores these settings on a user-specific basis under the name that was entered in the login screen of the user interface.

You can also update the screen form at any time by clicking on the "OK" pushbutton or by pressing the Return key.


For definition of the evaluation groups, see the Chapter entitled "Definition of Evaluation Groups" on page 2-15

For a description of the different input options with date fields, refer to the Chapter entitled "Operator Inputs to Screen Forms" on page 1-3

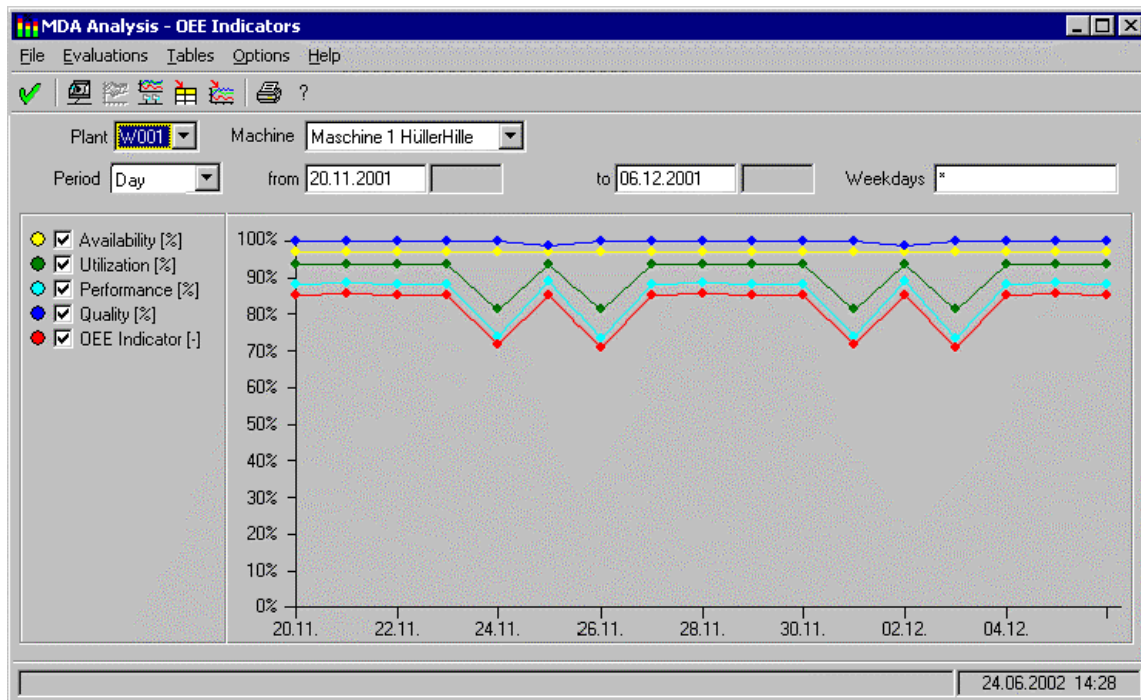
## 2.12 "OEE Distinctive Numbers" Screen Form

Call from menu bar: "Evaluations → OEE distinctive numbers"

The screen form shows you the OEE distinctive numbers (availability, rate of utilization, performance, quality, etc.) for a specified period of time and for a selected machine/unit or an evaluation group. The screen form supports representation as a graphic and in table form.

Using the  toolbar pushbuttons, you can switch between the two representations.

### Graphic representation:



### Representation in table form:

The screenshot shows the 'MDA Analysis - OEE Indicators' window with the following settings: Plant: W001, Machine: Maschine 1 HüllerHille, Aggregat: Maschine 1 HüllerHille, Period: Day, from: 20.11.2001, to: 06.12.2001, Weekdays: \*. The table displays the following data:

OEE indicator	Maschine 1 Hül
Availability	96,88 %
Utilization	90,81 %
Performance	84,84 %
Quality	99,87 %
OEE Indicator	0,82
MTTR Maintenance	30m
MTBF Reliability	8h 48m



**Default setting of the screen form:**

At display, the screen form contains the following default values:

- Plant, machine, unit: Preset machine/unit  
Note: Depending on the configuration, the system does not display the "unit" field.
- Group: Evaluation group that is currently in use
- Period of time:  
On first displaying a screen form with period of time:  
From: Current instant - Configured default period  
To: Current instant + 30 minutes  
Otherwise:  
Period of time that was last selected in a screen form.
- Graphic/table: Data of the period of time

**Operator inputs in the screen form:**

In the screen form, you can

- choose a machine in pick lists,
- specify a time type and a time range and
- change the width of the legend by clicking and holding down the left mouse button on the right-hand edge of the legend and dragging it to the desired width.

If you choose another machine or change the time range, the graphic is deleted. The system displays the graphic with the current specified data when you click on the "OK" pushbutton or press the Return key.

**Time types:**

In MDA, the statistical data is stored in different degrees of compression:

- **'Current'** - Current log  
This contains the latest status conditions and goes back a fixed number of entries into the past.  
You specify the maximum number of entries in the log by means of configuration.
- **'Shift'** - Compression for shifts  
The system stores the total times of the status conditions per unit for every shift.  
You specify the number of shifts in shift compression by means of configuration.
- **'Day'** - Compression for days  
The system stores the total times of the status conditions per unit for every day.  
You specify the number of days in day compression by means of configuration.
- **'Month'** - Compression for months  
The system stores the total times of the status conditions per unit for every month.  
You specify the number of months in month compression by means of configuration.
- **'Year'** - Compression for years  
The system stores the total times of the status conditions per unit for every year.  
You specify the number of years in year compression by means of configuration.

Using the "Time types" pick list, you can choose the current log ("Current") or a compression range ("Shift", "Day", "Month", "Year").

The following applies to the "**Shift**" period of time:

In "From", you enter the date and shift number where you want the evaluation to start.

In "To", you enter the date and shift number where you want the evaluation to end.

In the "Shifts" field, you can enter the shift numbers separated by commas that you want the system to use.

The following applies to the "**Day**" period of time:

In the "Days of the week" field, you can enter the days of the week separated by commas that you want the system to use.

#### **Explanations of the data in the screen form (graphic):**

In the legend and the graphic, the system displays the distinctive numbers in the colours that were defined at configuration.

#### **Explanations of the data in the screen form (table):**

In the table, the system displays the distinctive numbers with the formats and units that were defined at configuration.

#### **Configuring the graphic:**

You carry out configuration for calculating the OEE distinctive numbers on the Customizing (User) user interface.

For information on calculating the availability and rate of utilization, refer to the Chapter entitled "Calculating the OEE Distinctive Numbers" on page 2-35

#### **Updating the data:**

The screen form is not updated automatically.

Click on the OK toolbar pushbutton if you want to update the screen form.

For definition of the evaluation groups, see the Chapter entitled "Definition of Evaluation Groups" on page 2-15

For a description of the different input options with date fields, refer to the Chapter entitled "Operator Inputs to Screen Forms" on page 1-3

## 2.13 Calculating the OEE Distinctive Numbers

You calculate OEE distinctive numbers using the external program "OEECalculate".

Using this program, you can customize calculation of the OEE distinctive numbers on a project-specific basis. The description in this chapter refers to the version of "OEECalculate" that is supplied as-standard with MDA.

### Formulae for OEE distinctive numbers:

The OEE distinctive numbers that are provided for in the standard are calculated according to the following formula:

$$\text{Rate of utilization} = T_{\text{PROD}} / T_{\text{TARGET}} * 100 \%$$

$$\text{Availability} = (T_{\text{TARGET}} - T_{\text{ST}}) / T_{\text{TARGET}} * 100 \%$$

$$\text{Performance} = ( \sum_{\text{Material}} (\text{Total qty}_{\cdot\text{Material}} * \text{Target cycle time}_{\text{Material}}) ) / (T_{\text{target}} - T_{\text{ST}}) * 100\%$$

$$\text{Quality} = ( \sum_{\text{Material}} (\text{Total pcs}_{\cdot\text{Material}} - \text{Scrap qty}_{\cdot\text{Material}}) ) / ( \sum_{\text{Material}} \text{Total qty}_{\cdot\text{Material}} ) * 100\%$$

$$\text{OEE}_{\text{Machine}} = \text{Availability} * \text{Performance} * \text{Quality} / 1,000,000$$

$$\text{MTBF} = T_{\text{PROD}} / \text{Number of disturbances}$$

$$\text{MTTR} = \text{Duration of disturbances} / \text{number of disturbances}$$

$T_{\text{PROD}}$  The useful running time is the time in which the machine was working productively

$T_{\text{TARGET}}$  The planned assignment time is the time in which the machine should be working according to the works calendar

$T_{\text{ST}}$  This is the time in which the machine was technically disturbed

### Parameters in the configuration data:

The program reads the parameters below from the configuration data:

- Flag indicating whether the system runs with a works calendar:  
General settings → GLOB → WITH\_SHIFT  
This parameter specifies how the planned assignment time is determined, see below.
- Flag indicating whether the system runs with acquisition of PDA data (piece counts, part types):  
General settings → GLOB → WITH\_BDE\_ACQUISITION  
This parameter specifies how the piece counts and the target cycle time are determined, see below.

### Determining the planned assignment time $T_{\text{TARGET}}$ :

- If you are running your system **with a works calendar** ( $\text{WITH\_SHIFT} = 1$ ), the system calculates the planned assignment time as the total of the time durations of all the status conditions of time type "Working Time".  
To do this, the system totalizes the times in column "DAUER\_0" in tables "SCHICHTSUMME", "TAGESSUMME", etc.  
The configuration of the planned assignment time is ignored here.
- If you are running your system **without a works calendar** ( $\text{WITH\_SHIFT} = 0$ ), the system totalizes for the planned assignment time the time durations of the status conditions that were checked in configuration of OEE distinctive numbers in column "Planned assignment time".  
To do this, the system totalizes the times of the checked status conditions in column "DAUER\_SEK" in tables "SCHICHTSUMME", "TAGESSUMME", etc.

**Determining piece counts:**

- If you are running your system **with PDA acquisition** (`WITH_BDE_ACQUISITION = 1`), the system totalizes the piece counts of the part types from tables "BDE\_SCHICHTSUMME", "BDE\_TAGESSUMME", etc.  
The total piece count results from the total of columns "DE\_DELTA\_A\_S", "DE\_DELTA\_B\_S" and "DE\_DELTA\_C\_S".  
The system takes the scrap piece count from column "DE\_DELTA\_B\_S".
- If you are running your system **without PDA acquisition** (`WITH_BDE_ACQUISITION = 0`), the system totalizes the piece counts of the part types from the tables that contain the status data, i.e. "SCHICHTSUMME", "TAGESSUMME", etc.  
The total piece count results from the total of columns "DE\_WERT\_A", "DE\_WERT\_B" and "DE\_WERT\_C" across all the status conditions of the time range.  
The system takes the scrap piece count from column "DE\_WERT\_B".

**Determining the target cycle time:**

- If you are running your system **with PDA acquisition** (`WITH_BDE_ACQUISITION = 1`), the system totalizes the target cycle time of the part types from tables "BDE\_SCHICHTSUMME", "BDE\_TAGESSUMME", etc.  
The system takes the target cycle time from column "TAKT\_SUM\_SOLL". If this column is not assigned, the system takes the actual cycle time, "TAKT\_SUM\_IST", instead of the target cycle time.
- If you are running your system **without PDA acquisition** (`WITH_BDE_ACQUISITION = 0`), the system uses the machines target cycle time for calculating the performance.

**Notes:**

- If there is no data in the status tables for a time range, all the OEE distinctive numbers are set to '0'.
- If you are running your system with PDA acquisition and there is no data for a time range in the PDA tables, the system sets to '0' the OEE distinctive numbers for quality and performance, which also sets the OEE distinctive number to '0'.
- If the planned assignment time  $T_{TARGET}$  is the same as the time for technical disturbances  $T_{ST}$ , the performance is set to '0'.





### 3 Table View of Data

#### 3.1 "PDA Logbook" Screen Form

Call from menu bar: "Tables → PDA logbook"

The logbook contains all the events with their timestamps. The logbook indicates when a status came and when it ended.

Date created	Shift	Plant	Group	Activ.	Status	Comme
2000-08-18 16:56:39	2	ZKPD	AF510ZEN	highest priority on	Production	
2000-08-18 16:56:45	2	ZKPD	AF510ZEN	highest priority on	Machine off	
2000-08-18 16:56:54	2	ZKPD	AF510ZEN	highest priority on	Machine on	
2000-08-18 16:57:00	2	ZKPD	AF510ZEN	highest priority on	Production	
2000-08-18 16:57:20	2	ZKPD	AF510ZEN	highest priority on	Disturbance	
2000-08-18 16:57:25	2	ZKPD	AF510ZEN	highest priority on	Production	
2000-08-18 16:57:30	2	ZKPD	AF510ZEN	highest priority on	Machine off	
2000-08-18 16:57:40	2	ZKPD	AF510ZEN	highest priority on	Machine on	
2000-08-18 16:57:45	2	ZKPD	AF510ZEN	highest priority on	Production	
2000-08-18 16:58:05	2	ZKPD	AF510ZEN	highest priority on	Disturbance	
2000-08-18 16:58:10	2	ZKPD	AF510ZEN	highest priority on	Production	
2000-08-18 16:58:16	2	ZKPD	AF510ZEN	highest priority on	Machine off	
2000-08-18 16:58:25	2	ZKPD	AF510ZEN	highest priority on	Machine on	
2000-08-18 16:58:30	2	ZKPD	AF510ZEN	highest priority on	Production	

Default setting of the screen form:

At display, the screen form contains the following default values:

- Plant, machine, unit: Preset machine and unit  
Note: Depending on the configuration, the system does not display the "unit" field.
- Period of time:  
On first displaying a screen form with period of time:  
From: Current instant - Configured default period  
To: Current instant + 30 minutes  
Otherwise:  
Period of time that was last selected in a screen form.
- Table: Data of the period of time or blank

**Operator inputs in the screen form:**

In the screen form, you can

- specify a time range.
- choose a machine and a unit in pick lists,

**Contents of the table:**

You can use configuration and the "Customize table" toolbar pushbutton to set the columns in the table.

If necessary, you can scroll horizontally and vertically.

If you choose another machine or change the time range, the table is deleted. The system displays the table with the current specified data when you click on the "OK" toolbar pushbutton or press the Return key.

**Updating the data:**

The screen form is not updated automatically.

Click on the OK toolbar pushbutton if you want to update the screen form.

For a description of the different input options with date fields, refer to the Chapter entitled "Operator Inputs to Screen Forms" on page 1-3



### 3.2 "Current Status Conditions" Screen Form

Call from menu bar: "Tables → Current status conditions"

In the table, the system displays the currently pending status conditions of the machines and units.

#### Default setting of the screen form:

At display, the screen form contains the following default values:

- Plant, machine, unit: Preset machine and unit  
Note: Depending on the configuration, the system does not display the "unit" field.
- Table: Current status conditions or blank

#### Operator inputs in the screen form:

In the screen form, you can use pick lists to choose a machine and a unit.

#### Contents of the table:

You can use configuration and the "Customize table" toolbar pushbutton to set the columns in the table.

If necessary, you can scroll horizontally and vertically.

If you choose another machine, the table is deleted. The system displays the table with the current specified data when you click on the "OK" toolbar pushbutton or press the Return key.

#### Updating the data:

The screen form is not updated automatically.

Click on the OK toolbar pushbutton if you want to update the screen form.

For a description of the different input options with date fields, refer to the Chapter entitled "Operator Inputs to Screen Forms" on page 1-3

### 3.3 "Operation Logbook" Screen Form

Call from menu bar: "Tables → Operation logbook"

The operation logbook contains important events in the plant like start of shift and end of shift messages.

Date/Time	Plant	Group	Activ.	Shift	Ident	Work station
2000-08-17 13:00:00	ZKPD	AF62012B - Af	begin of break	3	0	5
2000-08-17 13:15:00	ZKPD	AF62012B - Af	end of break	3	0	5
2000-08-16 22:00:00	ZKPD	AF51002A -	Shift end	5	0	13
2000-08-16 22:00:00	ZKPD	AF51002A -	Start of nonworking shift	0	0	13
2000-08-17 06:00:00	ZKPD	AF51002A -	End of nonworking shift	0	0	13
2000-08-17 06:00:00	ZKPD	AF51002A -	Shift begin	1	0	13
2000-08-17 08:00:00	ZKPD	AF51002A -	begin of break	1	0	13
2000-08-17 08:15:00	ZKPD	AF51002A -	end of break	1	0	13
2000-08-17 09:00:00	ZKPD	AF51002A -	Shift end	1	0	13
2000-08-17 09:00:00	ZKPD	AF51002A -	Shift begin	2	0	13

#### Default setting of the screen form:

At display, the screen form contains the following default values:

- Plant, machine, unit: Preset machine and unit  
Note: Depending on the configuration, the system does not display the "unit" field.
- Period of time:  
On first displaying a screen form with period of time:  
From: Current instant - Configured default period  
To: Current instant + 30 minutes  
Otherwise:  
Period of time that was last selected in a screen form.
- Table: Current status conditions or blank

#### Operator inputs in the screen form:

In the screen form, you can use pick lists to choose a machine and a unit and to change the time range.

#### Contents of the table:

You can use configuration and the "Customize table" toolbar pushbutton to set the columns in the table.

If necessary, you can scroll horizontally and vertically.

If you choose another machine or change the time range, the table is deleted. The system displays the table with the current specified data when you click on the "OK" toolbar pushbutton or press the Return key.

**Updating the data:**

The screen form is not updated automatically.

Click on the OK toolbar pushbutton if you want to update the screen form.

For a description of the different input options with date fields, refer to the Chapter entitled "Operator Inputs to Screen Forms" on page 1-3

### 3.4 "Shift Compression" Screen Form

Call from menu bar: "Tables → Shift compression"

The shift compression shows the individual status conditions with their start and end times, the date and other data.

Plant	Group	Work station	Shift	BDE-Status	Start time	End time	Duration	Time ty	Act. col
ZKPD	AF51002A -	13	1	offline	2000-08-16 14:52:00	16.08.2000 14:55:32	0:03:32	0	0
ZKPD	AF51002A -	13	1	Default status	2000-08-16 14:55:32	16.08.2000 14:56:19	0:00:47	0	0
ZKPD	AF51002A -	13	1	tool change	2000-08-16 14:56:19	16.08.2000 15:32:00	0:35:41	0	0
ZKPD	AF51002A -	13	1	offline	2000-08-16 15:32:00	16.08.2000 15:41:42	0:09:42	0	0
ZKPD	AF51002A -	13	1	Default status	2000-08-16 15:41:42	16.08.2000 15:42:16	0:00:34	0	0
ZKPD	AF51002A -	13	1	tool change	2000-08-16 15:42:16	16.08.2000 16:06:00	0:23:44	0	0
ZKPD	AF51002A -	13	1	offline	2000-08-16 16:06:00	16.08.2000 16:09:18	0:03:18	0	0
ZKPD	AF51002A -	13	1	Default status	2000-08-16 16:09:18	16.08.2000 16:24:00	0:14:42	0	0
ZKPD	AF51002A -	13	1	offline	2000-08-16 16:24:00	16.08.2000 16:30:03	0:06:03	0	0
ZKPD	AF51002A -	13	1	Default status	2000-08-16 16:30:03	16.08.2000 16:43:00	0:12:57	0	0
ZKPD	AF51002A -	13	1	offline	2000-08-16 16:43:00	16.08.2000 18:11:12	1:28:12	0	0

#### Default setting of the screen form:

At display, the screen form contains the following default values:

- Plant, machine, unit: Preset machine and unit  
Note: Depending on the configuration, the system does not display the "unit" field.
- Period of time:  
On first displaying a screen form with period of time:  
From: Current instant - Configured default period  
To: Current instant + 30 minutes  
Otherwise:  
Period of time that was last selected in a screen form.
- Table: Current status conditions or blank

#### Operator inputs in the screen form:

In the screen form, you can use pick lists to choose a machine and a unit and to change the time range.

**Contents of the table:**

You can use configuration and the "Customize table" toolbar pushbutton to set the columns in the table.

If necessary, you can scroll horizontally and vertically.

If you choose another machine or change the time range, the table is deleted. The system displays the table with the current specified data when you click on the "OK" toolbar pushbutton or press the Return key.

**Updating the data:**

The screen form is not updated automatically.

Click on the OK toolbar pushbutton if you want to update the screen form.

For a description of the different input options with date fields, refer to the Chapter entitled "Operator Inputs to Screen Forms" on page 1-3

### 3.5 "Shift", "Day", "Month", "Year" Totals Screen Forms

Call from menu bar: "Tables" → Year total ", "... → Day total",  
 "... → Month total", "... → Year total"

The system compresses the status data of table "Shift Compression" to shift totals, day totals, month totals and year totals.

In these screen forms, you see the compressed data in table form.

Plant	Group	Work station	Shift	Date	BDE-Status	Duration	Time ty	Frequency
ZKPD	AF51002A -	13	1	2000-08-16 00:00:00	tool change	15:51:25	0	3
ZKPD	AF51002A -	13	1	2000-08-16 00:00:00	Default status	0:29:00	0	4
ZKPD	AF51002A -	13	1	2000-08-16 00:00:00	offline	1:50:47	0	5
ZKPD	AF51002A -	13	1	2000-08-16 00:00:00	100000	22:00:00	0	1
ZKPD	AF51002A -	13	1	2000-08-17 06:00:00	tool change	2:45:00	0	2
ZKPD	AF51002A -	13	1	2000-08-17 06:00:00	100000	3:00:00	0	1
ZKPD	AF51002A -	13	1	2000-08-17 06:00:00	tool change	0:15:00	1	1

Number of data: 7      2000-11-13 14:17

#### Default setting of the screen form:

At display, the screen form contains the following default values:

- Plant, machine: Preset machine  
 Note: Depending on the configuration, the system does not display the "unit" field.
- Period of time:  
 On first displaying a screen form with period of time:  
 From: Current instant - Configured default period  
 To: Current instant + 30 minutes  
 Otherwise:  
 Period of time that was last selected in a screen form.
- Table: Data of the period of time

**Operator inputs in the screen form:**

In the screen form, you can

- specify a time range.
- choose a machine and a unit in pick lists,

The following applies to the "**Shift**" period of time:

The days and the shift numbers are taken as separate "From" - "To" ranges.

Example:

If enter "2" as the "From" shift number and "4" as the "To" shift number, the system evaluates shifts 2, 3 and 4 for the entered period of time on all the days.

**Contents of the table:**

You can use configuration and the "Customize table" toolbar pushbutton to set the columns in the table.

If necessary, you can scroll horizontally and vertically.

If you choose another machine or change the time range, the table is deleted. The system displays the table with the current specified data when you click on the "OK" toolbar pushbutton or press the Return key.

**Updating the data:**

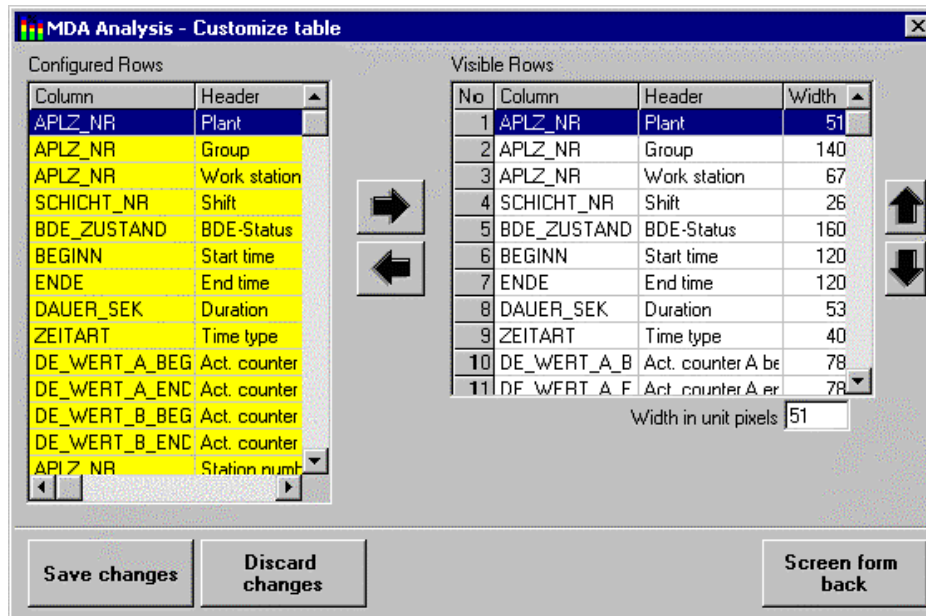
The screen form is not updated automatically.

Click on the OK toolbar pushbutton if you want to update the screen form.

For a description of the different input options with date fields, refer to the Chapter entitled "Operator Inputs to Screen Forms" on page 1-3

### 3.6 Configuring Tables

In the screen forms in which tables are displayed, you can call from the toolbar a configuration screen form to customize the table layout:



#### Default setting of the screen form:

At display, the screen form contains the following default values:

- Configured columns:  
This list shows all the columns that are provided for the current table.  
You can only change the contents of this list via "Configuration of OEM Data".
- Display and sequence of columns:  
This list contains all the columns that are displayed in the table together with their default widths.

#### Operator inputs in the screen form:

- *Take new column into table:*
  - In the left-hand list, choose the new column you want.
  - In the right-hand list, choose the column next to which you want to insert the new one.
  - Click on the pushbutton with the arrow pointing to the right.
  - The system inserts the new column in the right-hand list.
- *Remove column from table:*
  - In the right-hand list, choose the column that you want to remove.
  - Click on the pushbutton with the arrow pointing to the left.
- *Change sequence of columns:*
  - In the right-hand list, choose the column that you want to move.
  - Click on the pushbutton with the arrows pointing upwards and downwards.
- *Change the width of a column:*
  - In the right-hand list, choose the column that you want to change.
  - In the input field below the table, enter the new width in pixels.

#### Pushbuttons in the screen form:

- 'Save changes' Saves the settings
- 'Reject changes' Rejects the changes
- 'One form back' Clears the sub screen form



## 4 Correction Dialogue Screen Forms

### 4.1 “Machine Status Data“ Screen Form

Call from menu bar: “Extras → Correction machine data“

In this screen form, you can display, modify and delete machine status data.

Machine	Start time	Finish time	Status	Shift no.	Working time	Break time	Free shift	Gross duration	Comment
32 - Okuma Macturn 30/1500 101262	25.07.2003 20:44:01	25.07.2003 20:44:03	4000 - Produktion	2	0:00:02	0:00:00	0:00:00	0:00:02	6
32 - Okuma Macturn 30/1500 101262	25.07.2003 20:44:03	25.07.2003 20:46:27	4000 - Rüsten	2	0:02:24	0:00:00	0:00:00	0:00:02	
32 - Okuma Macturn 30/1500 101262	25.07.2003 20:46:27	25.07.2003 21:46:27	4000 - Störung Maschine	2	1:00:00	0:00:00	0:00:00	0:00:02	

#### Default setting of the screen form:

At display, the screen form contains the following default values:

- the lastly selected view with the corresponding selection and sort criteria and the corresponding table columns of the current user

#### Operator inputs in the screen form:

In the screen form, you can

- provide the selection criteria of the currently selected view or modify the default values respectively
- modify the standard sort order of the currently selected view

#### Contents of the table:

The table columns can be adapted in the screen forms “definition global view“ or ”definition private view“ respectively.

If necessary, you can scroll horizontally and vertically.

#### Updating the data:

The screen form is not updated automatically.

You can update the screen form at any time by clicking on the "OK" pushbutton or by pressing the Return key.

For a description of the different input options with date fields, refer to the Chapter entitled “Operator Inputs to Screen Forms” on page 1-3

**Correction machine data:**

Using a toolbar pushbutton you can display the correction frame at the lower end of the form if you have the privileges for that.

The correction will be performed for the currently selected data record(s) of the list.

You can select several data records by pulling the mouse keeping the left mouse button pressed.

Enter your modifications into the fields of the correction frame and/or apply a special registration function.

The input fields are activated for correction by check boxes. These are placed left of the field caption. If the box is checked the field is activated for correction. The box is checked automatically if you modify the current contents of the field. Additionally the activation of correction for a field is shown by the text color.

The correction is initiated by clicking the toolbar pushbutton “Save”. Before saving you are asked if you really want to apply the respective modification.

If you modify the fields that are affected by a selected special registration then first the manual modification and afterwards the special registration is performed.

The table will be refreshed immediately.

Applying again the toolbar button for the display of the correction frame you can remove it from the screen form.

**Special registration functions:**

- Working time becomes break time
- Working time becomes free shift
- Working time becomes maintenance
- Break time becomes working time
- Free shift becomes working time
- Maintenance becomes working time

**Deleting machine status data:**

Using a toolbar pushbutton you can delete the selected data record(s) of the list if you have the privileges for that.

You can select several data records by pulling the mouse keeping the left mouse button pressed.

Before deleting you are asked if you really want to do that.

## 4.2 “Create New Machine Status Record“ Screen Form

Call from the “Correction Machine Data“ screen form using a toolbar pushbutton

In this screen form, you can create a new machine status data record.

### Default setting of the screen form:

At display, the screen form contains the values of the selected line in the list form. This way you can copy another data record.

### Operator inputs in the screen form:

Enter the values and save the modifications by applying the "Save" toolbar pushbutton.

### 4.3 “Info View Machine Data Record“ Screen Form

Call from the “Correction Machine Data“ screen form using a toolbar pushbutton

In this screen form, you can display the details of a machine status data record.

Machine	32 - Okuma Macturn 30/1500 101262	
Start time	25.07.2003 20:44:03	Finish time 25.07.2003 20:46:27
Status priority	5	Status 4000 - DBx6.6
Shift no.	2	Shift start 25.07.2003 13:00:00
Working time	0:02:24	Free shift 0:00:00
Break time	0:00:00	Maintenance 0:00:00
Comment		
Mach.Counter good start	17	Mach.Counter good end 18
Mach.Counter scrap start	17	Mach.Counter scrap end 17
Mach.Counter rework start	18	Mach.Counter rework end 18
		Reserve 0:00:00
		Gross duration 0:00:02

21.07.2003 13:21

The screen form shows the values of the selected data record in the machine data list form.

#### Operator inputs in the screen form:

Using the arrow pushbuttons in the toolbar you can display the previous and next data record in the “machine status data list”. Thus you must not always change between this screen form and the “machine status data list” if you want to display the details of several lines in the list view.

## 4.4 “Define Global View For Machine Data“ Screen Form

Call from the “Correction Machine Data“ screen form using a toolbar pushbutton

In this screen form, you can define global views. Those are made available in the screen form “Correction Machine Data“ for selection of the data.

User name: Global views  
View: Administrator

```
SELECT APLZ_NR, BEGINN, ENDE, BDE_ZUSTAND, SCHICHT_NR, DAUER_0, DAUER_1, DAUER_2, DAUER_SEK,
BDE_TEXT_KOMM
FROM MDE_PRIOPROTO
WHERE APLZ_NR = ?
AND BEGINN >= ?
AND BEGINN <= ?
```

Heading	Column
Break time	DAUER_1
Comment	BDE_TEXT_KOMM
Compression	VERDICHTUNG
Consecutive no.	LPD_NR
Correction	KORR_FLAG
Finish time	ENDE
Free shift	DAUER_2
Gross duration	DAUER_SEK
Mach.Counter good	DE_WERT_A_END
Mach.Counter good	DE_WERT_A_BEG
Mach.Counter rewor	DE_WERT_C_END
Mach.Counter rewor	DE_WERT_C_BEG
Mach.Counter scrap	DE_WERT_B_END
Mach.Counter scrap	DE_WERT_B_BEG
Machine	APLZ_NR
Maintenance	DAUER_3
Modification date	AEND_DATE
Modification name	AEND_NAME
Reserve	DAUER_4
Shift no.	SCHICHT_NR
Shift start	DAT_UHRZ_S_BEG
Start time	BEGINN
Status	BDE_ZUSTAND
Status priority	BDE_PRIO
Transfer	TRANS_FLAG
Working time	DAUER_0

No.	Heading	Width
1	Machine	195
2	Start time	130
3	Finish time	130
4	Status	150
5	Shift no.	79
6	Working time	80
7	Break time	80
8	Free shift	80
9	Gross duration	80
10	Comment	178

Width in unit pixels: 195

No.	Cmp.	Default
1	=	
2	>=	
3	<=	
4	=	
5	=	

No.	Heading	Sorting
1	Machine	Ascending
2	Start time	Ascending

Sortierung: Ascending

21.07.2003 13:24

### Default setting of the screen form:

At display, the screen form contains the following default values:

- the lastly selected view of the previous screen form

### Operator inputs in the screen form:

In the screen form you can

- modify, delete and create new global filters

In the table “**Selection of columns**” all columns of the machine status table are displayed. The contents of this table is independent of the current view and is in the standard sorted after the column caption. You can re-sort the table contents clicking the caption of the column after which you want to sort.

In the table “**Displayed columns**” all those columns are listed that are displayed in the machine status screen form. You can add or delete columns by using the arrow keys left of the table. In the case of

adding the selected line of the table "Selection of columns" is chosen.

The display order in the table you can modify by using the up and down arrow keys to the right of the table. The currently selected line is then moved up or down respectively.

Below the table you can enter the column width in the list view. For some columns you can click a check box to the right of this input field. In this case the original values from the database are displayed in the list. In this case the values are neither translated (e.g. status) nor converted (e.g. quantity values) nor reformatted (e.g. time duration is not formatted as hh:mm:ss). The character "O" has the meaning of "Original value".

In the table "**Custom filter**" all defined custom filters are listed. Custom filters are freely defined WHERE clauses of the SQL statement.

In the table "**Filter**" all filter criteria of a view are listed. You can add and delete columns using the arrow keys left of the table. In the case of adding the selected line of the table "Custom filter" or "Displayed columns" is chosen respectively.

The display order in the table you can modify by using the up and down arrow keys to the right of the table. The currently selected line is then moved up or down respectively.

Below the tables are input fields to provide a comparison operator and a default value that is suggested in the list view. You can modify this value there. No default value can be provided for date fields not making sense in this place.

In the table "**Sorting**" all sort criteria of the view are listed. You can add and delete columns using the arrow keys left of the table. In the case of adding the selected line of the table "Displayed columns" is chosen.

The order of the sort criteria you can modify by using the up and down arrow keys to the right of the table. The currently selected line is then moved up or down respectively.

Below the table is a combo box. In this box you can choose the standard value of the sort order direction. The sort order direction can still be modified in the list view.

To the right of the combo box for the user name is the multi-line **field for select statements**. In this field the select statement is displayed that is activated by the current settings of the view. The field solely serves as information.

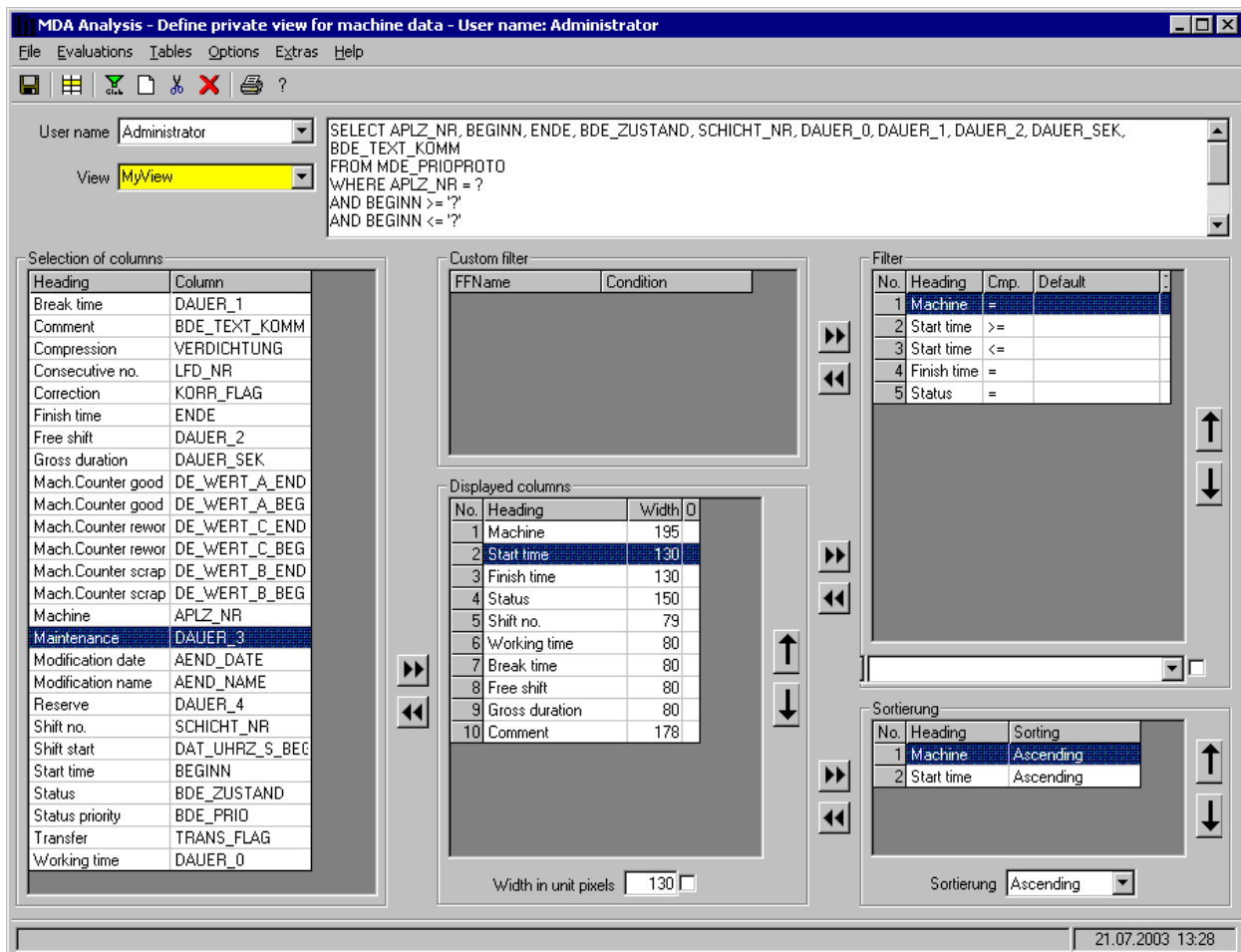
#### **Hint for saving the settings:**

Global views are associated to the user "Global views". If you save your settings the currently realised view is **registered under the user "Global views"**. If there is another user in the combo box this user's view will be copied.

## 4.5 “Define Private View For Machine Data“ Screen Form

Call from the “Correction Machine Data“ screen form using a toolbar pushbutton

In this screen form, you can define private views. These views are associated to a user and can only be used by him in the screen form “Correction Machine Data“ for selection of the data.



### Default setting of the screen form:

At display, the screen form contains the following default values:

- the lastly selected view of the previous screen form

### Filter:

A filter defines

- which selection criterion
- which sort criterion
- which table columns

are provided in the list screen form, i.e. the “Correction Machine Data“ screen form in this case.

### Operator inputs in the screen form:

In the screen form you can


- modify, delete and create new private filters

In the table **“Selection of columns”** all columns of the machine status table are displayed. The contents of this table is independent of the current view and is in the standard sorted after the column caption. You can re-sort the table contents clicking the caption of the column after which you want to sort.

In the table **“Displayed columns”** all those columns are listed that are displayed in the machine status screen form. You can add or delete columns by using the arrow keys left of the table. In the case of adding the selected line of the table “Selection of columns” is chosen.

The display order in the table you can modify by using the up and down arrow keys to the right of the table. The currently selected line is then moved up or down respectively.

Below the table you can enter the column width in the list view. For some columns you can click a check box to the right of this input field. In this case the original values from the database are displayed in the list. In this case the values are neither translated (e.g. status) nor converted (e.g. quantity values) nor reformatted (e.g. time duration is not formatted as hh:mm:ss). The character **“O”** has the meaning of **“Original value”**.

In the table **“Custom filter”** all defined custom filters are listed  custom filters are freely defined WHERE clauses of the SQL statement.

In the table **“Filter”** all filter criteria of a view are listed. You can add and delete columns using the arrow keys left of the table. In the case of adding the selected line of the table “Custom filter” or “Displayed columns” is chosen respectively.

The display order in the table you can modify by using the up and down arrow keys to the right of the table. The currently selected line is then moved up or down respectively.

Below the tables are input fields to provide a comparison operator and a default value that is suggested in the list view. You can modify this value there. No default value can be provided for date fields not making sense in this place.

In the table **“Sorting”** all sort criteria of the view are listed. You can add and delete columns using the arrow keys left of the table. In the case of adding the selected line of the table “Displayed columns” is chosen.

The order of the sort criteria you can modify by using the up and down arrow keys to the right of the table. The currently selected line is then moved up or down respectively.

Below the table is a combo box. In this box you can choose the standard value of the sort order direction. The sort order direction can still be modified in the list view.

To the right of the combo box for the user name is the multi-line **field for select statements**. In this field the select statement is displayed that is activated by the current settings of the view. The field solely serves as information.

#### **Hint for saving the settings:**

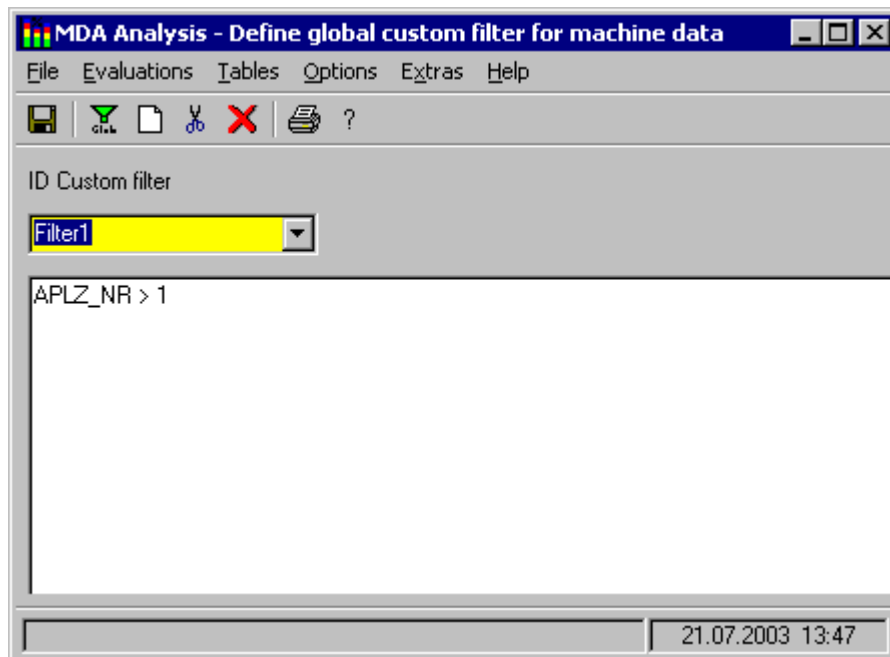
Private views are associated to the user that has been specified in the login screen form. If you save your settings the currently realised view is **registered under this user**. If there is another user in the combo box (e.g. “Global views”) this user’s view will be copied.



## 4.6 “Define Global Custom Filter For Machine Data“ Screen Form

Call from the “Define Global View For Machine Data “ screen form using a toolbar pushbutton

In this screen form, you can define global custom filters. These you can use as filter criterion in the definition of a view.



### Default setting of the screen form:

At display, the screen form contains the following default values:

- Custom filter identification: Currently selected custom filter in the “Define Global View For Machine Data “ screen form

### Operator inputs in the screen form:

Enter the custom filter name in the combo box “Custom filter identification”.

The condition for the selection of this data can be entered in the multi-line input field with the syntax of standard SQL. This condition is appended with AND to the filter criterion (“AND” must NOT be entered) if the custom filter is to be used in a view.

The provided condition in this field can also be modified being applied in the list screen form.



## 5 General Screen Forms and Notes

### 5.1 Piece Count Correction

Call from menu bar: "Evaluations → Piece count correction"

This screen form allows you to enter the not OK piece counts of one shift for one machine or one unit.

The screenshot shows a software window titled "MDA Analysis - Quantity Correction". The window has a menu bar with "File", "Evaluations", "Tables", "Options", and "Help". Below the menu bar are icons for a checkmark, a floppy disk, a printer, and a question mark. The main area contains several input fields: "Plant" with a dropdown menu showing "W001", "Machine" with a dropdown menu showing "Masch001", "Date" with a text box containing "09.09.2003", and "Shift no." with a text box containing "1". Below these fields is a large rectangular box containing two more input fields: "Total counter" with a text box containing "1920" and "Total scrap counter corr." with a text box containing "22". At the bottom right of the window, there is a status bar showing the date and time "09.09.2003 17:00".

**Condition:**

In the screen form, only machines that acquire piece counts are considered. Labelling on a data-technical basis is carried out in the work centre master data via field VGW02 = "001".

Default setting of the screen form:

At display, the screen form contains the following default values:

- Factory, machine, unit
- Current date with shift 1
- Fields blank

**Operator inputs in the screen form:**

In the screen form, you can  
choose a machine in pick lists and  
- specify a shift.

If data for the shift is available, the system displays the total counter and the not OK total counter that is to be corrected. You can now change the not OK total counter.

The system accepts the data when you click on the "Save" pushbutton.

If you choose another machine or change the time range, the currently displayed counters are deleted. The system determines the data again when you click on the "OK" pushbutton or press the Return key.

**Explanations of saving the data in the screen form:**

The system saves the data differently depending on whether the shift in question is the current one or a shift that has already been completed.

In the case of the current shift, the system adapts the offset value for the not OK total counter as follows:

- in the status data of the work centre (APLZ\_ZUSTAND.DE\_MASCH\_B\_KOR)
- in the work centre-specific shift data (SCHICHT\_APLZ.DE\_MASCH\_B\_KOR)

In the case of a shift that is completed and is in the past, the system adapts corrected counter in all the relevant compressed data depending on which compression stage has already been carried out. This affects the following data:

- Work centre-specific shift data (SCHICHT\_APLZ.DE\_MASCH\_B\_KOR)
- Shift-specific total values (SCHICHTSUMME.DE\_MASCH\_B\_KOR)
- Day-specific total values (TAGESSUMME.DE\_MASCH\_B\_KOR)
- Month-specific total values (MONATSSUMME.DE\_MASCH\_B\_KOR)
- Year-specific total values (JAHRESSUMME.DE\_MASCH\_B\_KOR)

**Updating the data:**

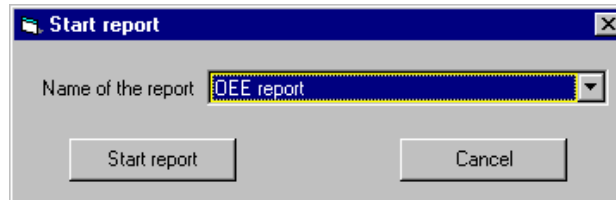
You can update the screen form at any time by clicking on the "OK" pushbutton or by pressing the Return key.

For a description of the different input options with date fields, refer to the Chapter entitled „Operator Inputs to Screen Forms“ on page 1-3

## 5.2 Calling a Report

Call from menu bar: "Evaluations → Call report"

You can use this screen form to call a predefined report in an Access database or another program:



### Operator inputs in the screen form:

Choose the desired report from the pick list.

Start the report by clicking on "Execute report" or exit the screen form by clicking on "Cancel".

### Configuring callable reports:

You configure these report jobs in the configuration database in table "GLOBAL\_PARA" at program "GUI\_ANALYS":

REPORT_ACCESSPATH	C:\MSOffice\Office\msaccess.exe
REPORT_DATABASE	C:\MDA\mda.mdb
REPORT_NAME_1	OEEKennzahlen
REPORT_NAME_2	SchichtProto

- **REPORT\_ACCESSPATH**  
Here, you store the path and the name of the program that you want to call. This can be Access, but Excel is also possible.
- **REPORT\_DATABASE**  
Here, you store in Access the path and the name of the database in which the report is written as a macro. In Excel, you would enter an Excel file.
- **REPORT\_NAME\_x**  
There can be several names of evaluations. In "PAR\_VAL", you store the name of the macro in the database or of the Excel workbook that is to be called. The foreign language columns "German", "English", etc., contain the designations of the evaluations that users see in the pick list in the screen form above.

**Generated call:**

If you click on "Execute report" in the screen form above, the system composes the following call from the configured data and executes it:

```
C:\MSOffice\Office\msaccess.exe C:\MDA\mda.mdb  
/X OEEKennzahlen  
/cmd APLZ_NR=1 LANGUAGE=German
```

The "/X" parameter, which Access needs, is prepended to the macro name (here "OEEKennzahlen").

The system transfers as parameters to the macro the number of the current machine (here "APLZ\_NR=1") and the designation of the current language (here "LANGUAGE=German").

If trace is activated, the system also writes the call to the trace file "GUI\_ANALYS\_x.txt".

### 5.3 System Logbook

Call from menu bar: "Options → System logbook"

The system logbook contains

- Error messages of programs of MDA
- Log messages of specific events such as the start time of the servers, ...

In the case of error messages on the user interface, you can use the system logbook to see what caused the error and whether the background programs started and ended correctly.

Time	Error class	Program ider	Text	Comment
2000-11-13 10:51:19	3	MdeTransfer	MdeTransfer terminated	Version 5.3.10
2000-11-13 10:51:18	2	MdeTransfer	Error in transfer configuration data	(access error transfer
2000-11-13 10:51:14	3	MdeTransfer	MdeTransfer started	Version 5.3.10
2000-11-13 10:50:19	3	MdeTransfer	MdeTransfer terminated	Version 5.3.10
2000-11-13 10:50:18	2	MdeTransfer	Error in transfer configuration data	(access error transfer
2000-11-13 10:50:14	3	MdeTransfer	MdeTransfer started	Version 5.3.10
2000-11-13 10:49:19	3	MdeTransfer	MdeTransfer terminated	Version 5.3.10
2000-11-13 10:49:18	2	MdeTransfer	Error in transfer configuration data	(access error transfer
2000-11-13 10:49:14	3	MdeTransfer	MdeTransfer started	Version 5.3.10

#### Default setting of the screen form:

At display, the screen form contains the following default values:

- Period of time:  
On first displaying a screen form with period of time:  
From: Current instant - Configured default period  
To: Current instant + 30 minutes  
Otherwise:  
Period of time that was last selected in a screen form.
- Error class: '\*' - Displays all error classes
- Program identifier: '\*' - Displays all messages of all programs.
- Computer name: '\*' - Displays all messages of all computers
- Table: Data of the period of time

In the case of PDA, the system reports on a cyclical basis to the MDA system the new entries of the system logbooks of the connected MDA acquisition stations. If you are only interested in the messages of a specific station, you can limit the display of messages to just this station by choosing its "Computer Name" in the pick list.

**Error classes:**

The messages in the error logbook are weighted by error classes:

- Error class 1: Error messages from the system
- Error class 2: Information
- Error class 3: Log messages for events

**Operator inputs in the screen form:**

In the screen form, you can

- specify a time range.
- filter by error class, program identifier or computer name.

With the "**error class**" filter, you can enter an asterisk (\*) for all the error classes or the number of an error class to output just the messages of this error class.

With the "**program identifier**" filter, you can enter an asterisk (\*) for all the program identifiers or specify a search string.

The pick list contains the names of all the program identifiers in the log.

The system does not differentiate between upper- and lower-case letters, i.e. "Mde\*" returns the same messages as "MDE\*".

Examples: "Mde\*" "\*E\*" "GUI\_MDE".

With the "**computer name**" filter, you can enter an asterisk (\*) for all the stations or specify a search string.

The pick list contains the names of all the stations in the log.

The system does not differentiate between upper- and lower-case letters, i.e. "Nbq2\*" returns the same messages as "NBQ2\*".

Examples: "Nbq2\*" "\*BQ2\*" "NBQ2334".

**Contents of the table:**

You can use configuration to set the columns in the table as well as how the data is sorted in the table.

In the "Text" column, there is a brief description of the message, the "Comment" column contains an explanation of the message, e.g. the actual text of the error.

If necessary, you can scroll horizontally and vertically.

If you change the time range, the table is deleted. The system displays the table with the current specified data when you click on the "OK" toolbar pushbutton.

**Updating the data:**

The screen form is not updated automatically.

Click on the OK toolbar pushbutton or press the Return key if you want to update the screen form.



## 5.4 Starting Without Login

By means of configuration, you can set up the user interface such that it starts without you needing to log in.

By making the following entries in

General Settings → GUI\_ANALYS

you can specify whether the system displays the login screen at start-up or the login with which automatic login in is carried out:

- LOGIN\_ACTIV      0            - No login screen is displayed at start-up  
                      Otherwise - Login screen is displayed at start-up
- LOGIN\_CLASS      User name to use if you start up without a login screen.  
                      This entry is only used if "LOGIN\_ACTIV = 0".
- LOGIN\_ACTIV      0            - No login screen is displayed at start-up
- START\_MASK        This entry specifies the screen that is displayed first (after login) at start-up of the user interface

Even if you started the user interface without a login screen, it is possible to log in under another user name at any time using the "**File -> Login Screen**" menu or the "Login Screen" pushbutton. When you have done this, the system uses the settings and authorizations of this user name.

## 5.5 Language Selection

The texts of the screen forms can be displayed in various languages.

You change languages using menu item "**Options**".

## 5.6 About

The "**Help->About**" menu item displays a window containing the version number of the user interface.

## 5.7 Display Help

Calls the user interface's help screen.



## 6 General Information on Handling

### 6.1 Information on Using the Mouse

All the information about the right and left mouse buttons refers to the default settings for the mouse for right-handed users that are stored in the Windows Control Panel! If you have reversed the settings of the mouse buttons for left-handed people, take this into account when making the described inputs.

### 6.2 The Help System

The MDA applications have a help system that is available at every single stage of your work with the system. You activate it by pressing the F1 function key on the top row of your keyboard.

It works on a context-sensitive basis, i.e. the help that you get refers to the screen form where you are currently working. When you press the F1 function key to start the help system, it explains the current screen form to you.

Single-clicking on terms that are displayed in green takes you to the desired topic; single-clicking on the **Back** pushbutton takes you back to the topic that was displayed previously. The **Back** pushbutton is located at the top of the window under the menu bar.



## 7 Glossary

### 7.1.1.1.1 OEE

Overall Equipment Effectiveness

### 7.1.1.1.2 Evaluation definition

For the "analysis of reason for disturbance" and "status analysis" graphics, you specify in the evaluation definitions the status conditions that are to be displayed.

Values "minimum duration" and "minimum frequency" specify how often and for how long a status must have occurred for it to be displayed.

### 7.1.1.1.3 User Group

The user group specifies which screen forms and functions are available to users.

User groups are managed via the configuration interface.

Using the login screen, you can change the user login and with this the user group.

### 7.1.1.1.4 Hardcopy

A printout of the current contents of the screen. It can be triggered by means of a configurable function key.

Default setting:

PC: F12 function key

### 7.1.1.1.5 Main Units

Every machine has a main unit, which describes the status of the machine, and other units that describe sections of the machine e.g. feeds.

### 7.1.1.1.6 Main Screen

A screen form from which you call all the other screen forms. The main screen has no functionality of its own.

### 7.1.1.1.7 MDA

Abbreviation for "Machine Data Acquisition".

### 7.1.1.1.8 Message Line

The message line is at the bottom edge of the screen form.

The background colour shows the type of message:

Green: -> Information

Yellow: -> User error, warnings

Red: -> System error, serious error. There is generally more information in the error logbook.

### 7.1.1.1.9 Menu Bar

The menu bar at the top of the window provides all the functions of the user interface.

### **7.1.1.1.10 Priority**

Each status is given a priority number. Lower priority numbers represent higher priorities.

### **7.1.1.1.11 Configuration**

In MDA, all the settings are stored in a configuration database and you can customize them by means of the configuration interface.

### **7.1.1.1.12 Log**

The "log" contains the status conditions with the arrival and ending times for a limited time range in the past.

### **7.1.1.1.13 Pushbutton**

Pushbuttons are displayed in the toolbars or on the footers of screen forms. You can only operate the toolbar using the mouse; you can operate the pushbuttons on the footer using function keys, the mouse or the space bar.

### **7.1.1.1.14 Start Screen**

The screen form that is displayed after start-up and, after possible display of the login screen, that is displayed first.

You can change the start screen via configuration.

### **7.1.1.1.15 Preferred Machine**

In the "Select Units" screen form, you define a preferred machine and a preferred unit. When screen forms are displayed, the system enters them as the default setting in the headers of the screen forms.

### **7.1.1.1.16 Time Type**

In the "Analysis of reason for disturbance" and "Availability analysis" evaluations, you have available time types "Current", "Shift", "Day", "Month" and "Year". In the case of time types "Shift" to "Year", the system displays compressed data.

### **7.1.1.1.17 Status Group**

A status group consists of main and sub-status conditions and describes the possible status conditions of a machine or unit type. Exactly one status group is assigned to every machine and every unit.

### **7.1.1.1.18 Status class**

A status class consists of one main status condition, e.g. "disturbance" and possibly several sub-status conditions, e.g. "Blank missing", "Order missing". The status classes of a machine type or an unit type are grouped into a status group.

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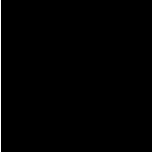
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