

**OVERVIEW**

**OPERATION**

**ADMINISTRATION**

**HARDWARE**

**DEVELOPMENT**

**QUALIFICATION**

## **SyCOS Alarm Summary Display**

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<b>1.</b>	<b>Preface</b> .....	<b>5</b>
<b>2.</b>	<b>Concepts</b> .....	<b>6</b>
<b>3.</b>	<b>Detailed Functionality of ASDT</b> .....	<b>9</b>
3.1.	Alarm Message Handling.....	9
3.1.1.	System Messages.....	9
3.1.2.	DB Alarm Messages.....	9
3.1.3.	Extol Messages.....	10
3.1.4.	General.....	11
3.2.	Operator Interaction Handling.....	12
3.2.1.	Operator Decision.....	12
3.2.2.	Operator Entry.....	12
3.3.	General Functionality.....	13
3.3.1.	Start of ASDT.....	13
3.3.2.	General Behaviour of ASDT.....	13

**Alarm Summary Display - Normal, Nonsplit mode 6**

**Alarm Summary Display - Splitmode 6**

Operator Interactions - OPDEC 7

Operator Interactions - OPENTER 7

SyCOS System Error Message Popup 11

Alarm Summary Display Icon 14

# 1. Preface

---

<b>Contents</b>	<p>This manual is the reference to the <i>Alarm Summary Display</i> for SyCOS Operator Consoles.</p> <p>The Alarms Summary Display Task (ASDT) is a window application, which performs the following functions:</p> <ul style="list-style-type: none"><li>• Display all alarm messages and application driven messages to the operator.</li><li>• Allow alarm acknowledgment of alarms.</li><li>• Display all operator interaction requests from EXTOL applications.</li><li>• Support the interaction of the operator with the EXTOL application.</li></ul>
<b>Audience</b>	<p>This manual has been written for the application engineers and operators who will interact with the system.</p>
<b>Validity</b>	<p>This manual applies to SyCOS.</p>
<b>Related Documents</b>	<p>For information on the standard alarms generated refer to the SyCOS Control Package Reference Manual.</p>
<b>Request for Comment</b>	<p>If you have any problems with the text contained in this document or if you wish to make suggestions for improvements or with the software it describes, please feel free to contact the SyCOS Product Support Group, namely:</p> <p style="padding-left: 40px;"><i>Mr. Rolf Breitenstein</i> <i>Syte GmbH</i> <i>Seewenweg 5</i> <i>CH-4153 Reinach, Switzerland</i></p> <p>Please be sure to provide the full name of the document and its version number as stated on the front page.</p>
<b>Acknowledgements</b>	<p>This Manual was produced by R. Breitenstein.</p>

## 2. Concepts

**Presentation:**

The Alarm Summary Display presents messages of different types and operator interactions to the user. When the alarm summary display is invoked, two different display modes can be specified: the normal or nonsplit mode and a split mode. In the split mode the window is split into two sections, one section for the operator interactions and the other for messages.

The following two graphic figures show the Alarm Summary Display in both modes:

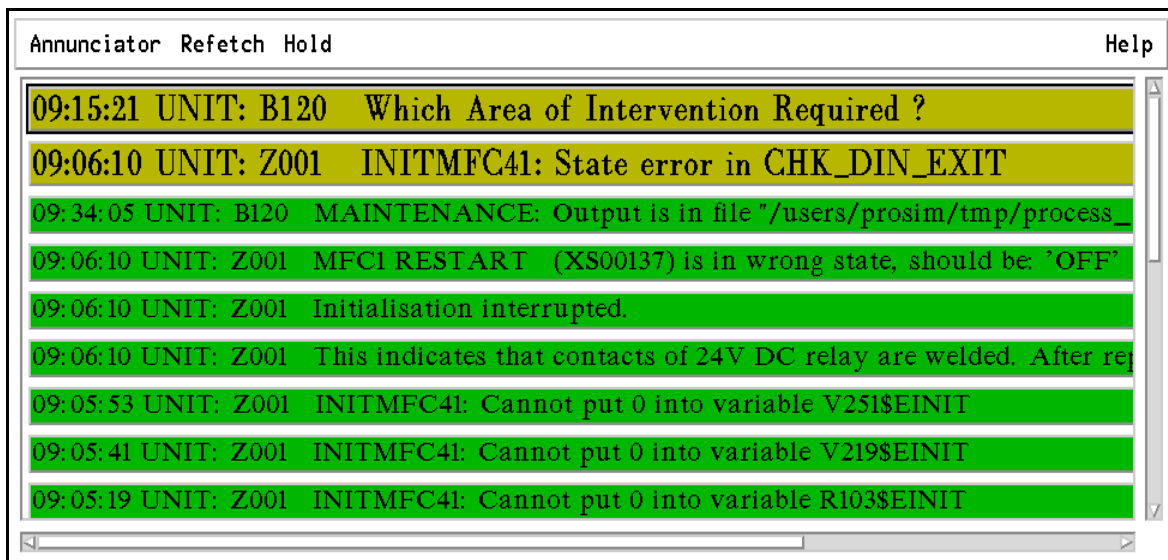


Figure 1: Alarm Summary Display - Normal, Nonsplit mode

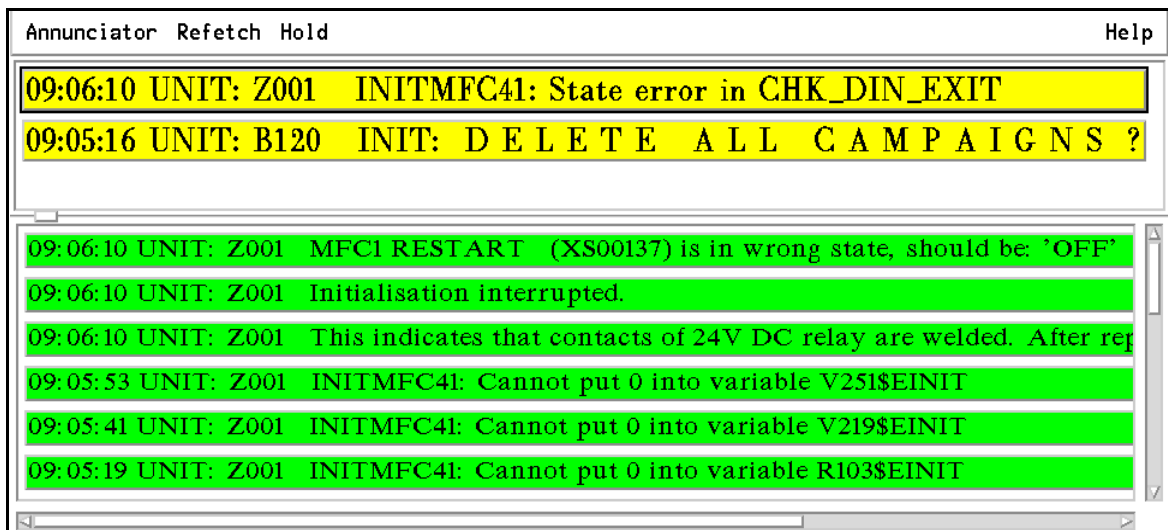


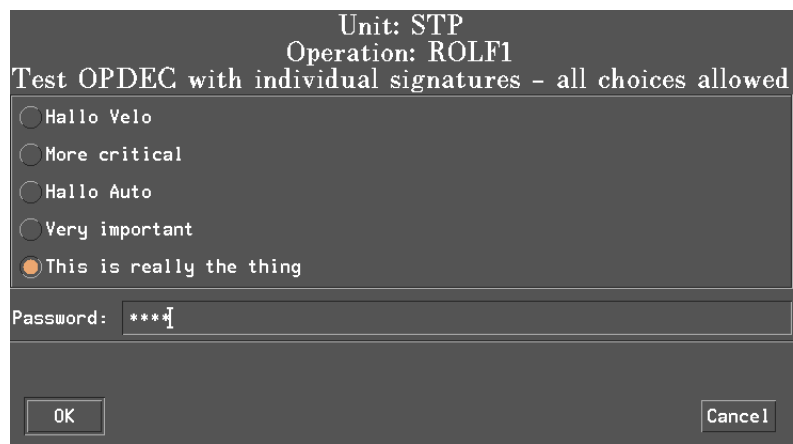
Figure 2: Alarm Summary Display - Splitmode

**Operator Interaction:**

There are two types of operator interactions:

- Operator decisions (OPDEC); this type of interaction allows the user to influence the flow of the EXTOL application program by selecting an option from a popup box listing all available possibilities. The main popup box may lead to other popup boxes containing further options which the user must select from to proceed. Each decision may ask for an electronic signature, i.e. the operator is requested to re-enter his password in the password prompt field. If no signature is required, the field is inactive.

Figure 3: Operator Interactions - OPDEC



- Operator Entries (OPENTER); After a main title line has been selected, an operator entry popup box that allows the user to enter either numeric or text information appears. The contents of the input is then stored in a unit variable defined in the EXTOL application to be used by the application. Each entry may require an electronic signature, i.e. the operator is requested to re-enter his password in the password prompt field. If no signature is required, the field is inactive.

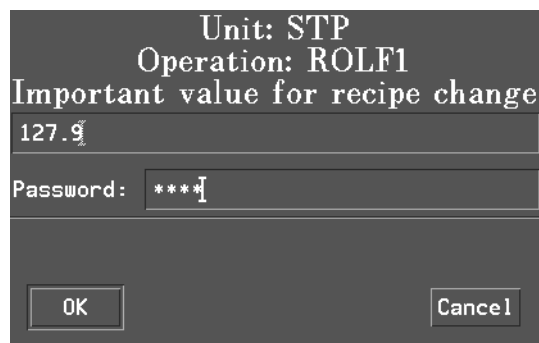


Figure 4: Operator Interactions - OPENTER

- Messages:** The SyCOS system generates messages that are displayed in the message text area. The messages may be of the following types:
- Standard Alarm Messages from the control packages, such as HI-Alarm, LO-Alarm messages. They are displayed in their standard alarm colour.
  - EXTOL generated messages, in different colours (as specified in the EXTOL print statement) or in the default colour green.
  - System Alarm Messages, they inform about certain states of the SyCOS system, such as Watchdog drops, etc.
- Messages are listed on the Alarm Summary Display window in the order of their arrival on the PIC from the MFCs where they are timestamped. Under normal operating conditions the messages appear in chronological order. However, it is possible that delays in the message transport system may cause the messages to appear in non-chronological order (within a difference of several seconds).
- Annunciator:** Messages can be defined to initiate an acoustical alarm, the annunciator. When the annunciator has been activated, it may be acknowledged and silenced by pressing the button labelled Annunciator located in the top portion of the Alarm Summary Display. When active, the annunciator button has blinking red background.
- Operations:** The Alarm Summary Display allows the operator to perform the following operations:
- Select an individual message for acknowledgement, by clicking the left mouse button with the cursor positioned in the message.
  - Select an Operator Interaction (OPDEC or OPENTER) by clicking the left mouse button with the cursor positioned in the title line of the operator interaction
  - Deactivate or acknowledge the audible annunciator, by clicking the left mouse button with the cursor positioned **Annunciator** button field.
  - Force a **Refetch** of all current Operator Interactions from all of the MFCs. This button (located in the top portion of the display) may be clicked, when the user is in doubt, if all Operator Interaction messages are on the alarm summary display.
  - The operator may stop the visual update of the Alarm Summary Display by clicking the left mouse button with the cursor positioned on the **Hold** button field. This will freeze the update of the window, in order to allow easy reading or acknowledgment of messages. The button turns then into a red coloured Continue. When the Continue button is pressed subsequently, updating of the window is resumed.
  - If the alarm summary display is shown in the split-mode, the point of the screen split may be moved, by dragging the split point (on the left hand side between the two windows, where the cursor shape changes to a cross) up or down.

## 3. Detailed Functionality of ASDT

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### 3.1. Alarm Message Handling

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Messages, automatically generated by the SyCOS system or driven by the EXTOL application, always have upto 16 different alarm destinations. These may be of type BHF (Batch History File), alarm typers, consoles or log-files. In case the message is sent to an alarm destination of type console, it will be displayed on an alarm summary display.

The relationship between alarm destinations, physical and logical devices is explained in the system configuration manual.

#### Acknowledge of Messages:

A message is acknowledged by placing the cursor anywhere in the message and pressing the left mouse button. When acknowledged most messages stop blinking (become steady) and their message text color is changed to grey.

#### Removal of Messages:

Almost all messages are automatically removed by the system when acknowledged. The exception is certain EXTOL messages and latching alarms. Both message types are removed only when acknowledged on the alarm summary display.

#### 3.1.1. System Messages

---

Some SyCOS system programs can produce messages on the alarm summary display. These system messages appear in white colour background. Examples are:

“<time> SYSTEM MESSAGE FROM <pic name>: PIC is CONNECTED”

“<time> SYSTEM MESSAGE FROM <mfc name>: MFC is CONNECTED”

New system alarm messages are blinking, unless they have already been acknowledged elsewhere. System messages are removed from the alarm summary display after they are acknowledged.

#### 3.1.2. DB Alarm Messages

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Some alarms are produced by the control package. The following syntax appears on one alarm summary line:

“<time> UNIT: <unit name> <elt name> <measured value> <engineering unit> <Descriptor 1> <Descriptor 2> <Descriptor 3> <alarm>”

The severity of the alarm messages is displayed in different colours.

- New standard alarm messages (from the control packages) are blinking, unless they have already been acknowledged elsewhere.
- Blinking alarm messages change to a steady state. Control package alarms are acknowledged.
- Latched alarms displayed in blue colour disappear. These are control package alarms and are acknowledged.
- Be aware, that the functionality is only allowed for authorized personal when acknowledging standard control package alarms.

- Database alarms appear in their standard colour:
  - Cyan - normal alarms (minor)
  - Yellow - major alarms
  - Red - critical alarms
  - Blue - latched alarms (i.e. disappeared alarms, but unacknowledged)

**Acoustic Alarm:**

Alarms may be defined to switch on an acoustic alarm on the console. This annunciator may be acknowledged by pushing the **Annunciator** button on the menu area of the alarm summary display. This causes the acoustic alarm to stop. The acoustic alarm stops as well, when the alarm message itself is acknowledged.

### 3.1.3. Extol Messages

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New EXTOL messages are blinking, unless they have already been acknowledged elsewhere. They are in the colour defined by the EXTOL application (in the EXTOL *print* statement, the message rank indicates the colour).

The following colours are available:

- Green - this is the default colour (rank = 0)
- Blue (rank = 1)
- Cyan (rank = 2)
- Yellow (rank = 3)
- Red (rank = 4)

Acknowledged messages either;

- Disappear; EXTOL messages defined with EXTOL print statement attribute = 1 disappear when acknowledged.
- Change to Steady state; EXTOL messages defined with EXTOL print statement attribute = 2 change to a steady state (non-blinking) and greyed text. These cannot be removed from the alarm summary display unless they are explicitly removed by the EXTOL statement *delete code* with attribute =2. This command removes messages which have already been acknowledged or sets an unacknowledged message to greyed blue which when acknowledged is removed. This type of delete is called a soft delete.

It is possible to have messages disappear before being acknowledged if the EXTOL statement *delete code* is used with an attribute = 0. This removes the message from the display whether it was acknowledged or not. This type of delete is called a hard delete.

Another type of message that can appear is the error message. It is a message generated by the EXTOL runtime system to inform the user that either the alarm message buffer is too small for the data or a unit or process variable can not be accessed or parsed correctly. The dialog box text is 'Can not acknowledge alarm OK' and is illustrated below:

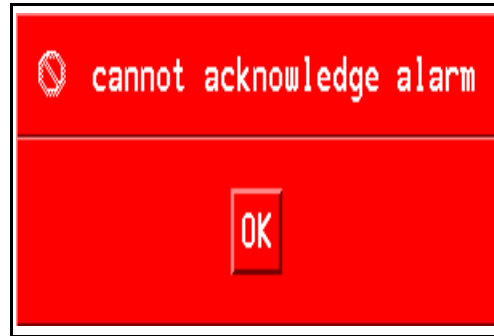


Figure 5: SyCOS System Error Message Popup

### 3.1.4. General

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<b>Order of Messages:</b>	Messages are displayed in the order of their arrival at the PIC. This is not necessarily the chronological order of their creation. The time stamp displayed always represents the time of their creation in the MFC. Under normal load conditions messages may not be in the chronological order within a time frame of approx. 8 seconds. In overload situations this may be exceeded. (Performance)
<b>Display of Messages:</b>	New messages are always displayed on the top of the message window. I.e. older messages are pushed down on the screen. The messages are displayed in the following manner:
<b>Freeze Alarm Summary Display update:</b>	<p>The update of the alarm summary display may be stopped for as long as required by pushing the button <b>Hold</b> on the menu area of the alarm summary display. This stops the update of the window displayed, it does not stop the internal update function, i.e. new alarms are added and old ones are still removed. This allows the user to acknowledge alarms or to read messages without the messages moving continuously. New annunciator alarms are also suppressed by the Hold Button.</p> <p>The button text is then changed to a red <b>Continue</b>, which causes update to be resumed when pushed. And new annunciator alarms which were suppressed during the Hold period appear as well when the Continue button is pressed.</p>

## 3.2. Operator Interaction Handling

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- New operator interaction title lines are blinking in yellow and use a larger font.

Operator Interaction takes place between the EXTOL application program and the operator directly. There are two forms of operator interactions:

- Operator Decisions (OPDEC)
- Operator Entry (OPENTER)

For both types of interactions the header line of the interaction is displayed on the alarm summary display, either in the separate top window when in split-screen mode or intermixed with normal messages when in the nonsplit mode.

**Subsequent Interactions:** When there are several operator interactions from the same EXTOL application program (the same operation), the selection window or the data entry window is automatically popped up without selection required. This is a convenience feature.

### 3.2.1. Operator Decision

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**Operator Decision:** When the header line is displayed, the user can select it, by moving the cursor to the appropriate line and clicking the left mouse button. This pops up a new window with the possible selections and descriptive text (maximum 10 selections, each with maximum of 79 characters). The user may now select one of the choices by clicking on the appropriate diamond in front of each choice. One choice may be defined as the default choice. This one is preselected, when the window pops up. The selection is then confirmed by pressing the OK button. This causes the answer to become effective in the EXTOL application program. The header line will be removed.

Pressing the CANCEL button closes the selection window without any further action.

The selection of such choices may be subject to authorization and signature required. Choices, which a person is not authorized to select, appear greyed out on the selection window.

**Refetch of Operator Interactions:** Under certain failure conditions, it may happen that an operator interaction is either not shown or one that is shown is no longer valid. In this case a resynchronization of the display with the actual situation on the MFCs can be forced. This is done by pushing the button **Refetch** on the menu area of the alarm summary display.

### 3.2.2. Operator Entry

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**Operator Entry:** When the header line is displayed, the user can select it, by moving the cursor to the appropriate line and clicking the left mouse button. This pops up a new window which allows to enter either a numerical value or a text of maximum 79 characters. Whether a text or a number is required is determined from the header text. If the input is invalid, then an error message indicating invalid data entered appears. The entry is confirmed by pressing the OK button. This causes the entered value to be handed over to the EXTOL application program.

Pressing the CANCEL button closes the data entry window without any further action.

Answering an OPENTER may be subject to enter a signature.

### 3.3. General Functionality

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#### 3.3.1. Start of ASDT

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**Start of ASDT:** The program asdt is started using the following command line:

```
asdt [-maxAlarm #] [-alarmLimit #] [-hold] [-splitScreen] [console-  
number | name]
```

with the following meaning:

- **console number** - The console number of this PIC. This number defines, which alarm destination is represented by this alarm summary display window. The range of numbers is 0,1,2 where 0 is the default value. This corresponds to the 1., 2. and 3. operator console alarm destination defined in the system configuration file under the section ALARMDESTINATIONS (the alarm destinations are implemented as CONSOLES).
- **name** - The name of the alarm destination as defined in the SyCOS system configuration file. As an alternative to the console number.
- **-splitScreen** - This option displays the alarm summary in split mode, the operator interaction subwindow on the top and the message area subwindow on the bottom.
- **-maxAlarm <no of lines>** - This limits the number of lines displayed in the message window to the given number. Only the most recent (newest) messages are displayed. This option is recommended, when there are large numbers of alarm messages pending [range - to 500]. By default unlimited. It is strongly recommended to limit this number.
- **-alarmLimit <no of alarms>** - Limits the internal buffer to take care of the maximum alarms defined through this parameter [range 0 to 20000]. The default is set to 1000.
- **-hold** - Activates the Hold button, which allows to freeze the window update.
- **-icon** - Iconises the asdt display. The user must click on the icon to invoke the display.

#### 3.3.2. General Behaviour of ASDT

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**Popup, Icon:** The alarm summary display is represented by a specific picture, when iconised. The icon shows a blinking red, when there are unacknowledged alarms in the message area. A yellow rectangle indicates that there are outstanding operator

interactions on the window.

The following figure represents the Alarm Summary Display icon:

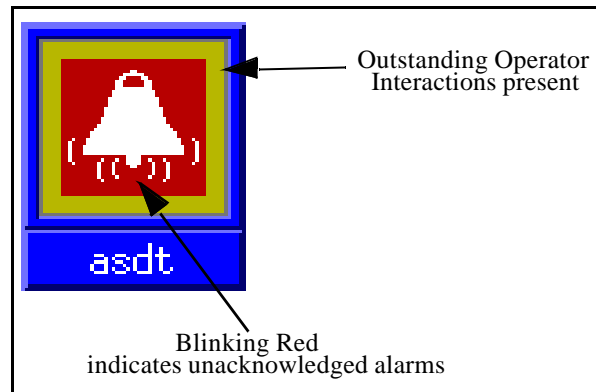


Figure 6: Alarm Summary Display Icon

When the alarm summary display is hidden by other windows on the screen and there is either a new message or a new operator interaction added to the window, the whole alarm summary display is automatically popped onto the front.

A

alarm messages summary

Operations 8

alarm summary display 6

mode

normal or nonsplit 6

split 6

Annunciator 8

asdt command 13

D

DB Alarm Messages 9

E

EXTOL delete code statement 10

Extol Messages 10

EXTOL print statement 10

F

Freeze Alarm Summary Display update 11

M

Messages 8

Acknowledge of Messages 9

Display of Messages 11

EXTOL generated messages 8

Order of Messages 11

Removal of Messages 9

Standard Alarm Messages 8

System Alarm Messages 8

O

Operator Decision 12

Operator Decisions (OPDEC) 12

Operator decisions (OPDEC) 7

Operator Entries (OPENTER) 7

Operator Entry 12

Operator Entry (OPENTER) 12

R

Refetch of Operator Interactions 12

S

Start of ASDT 13

System Messages 9