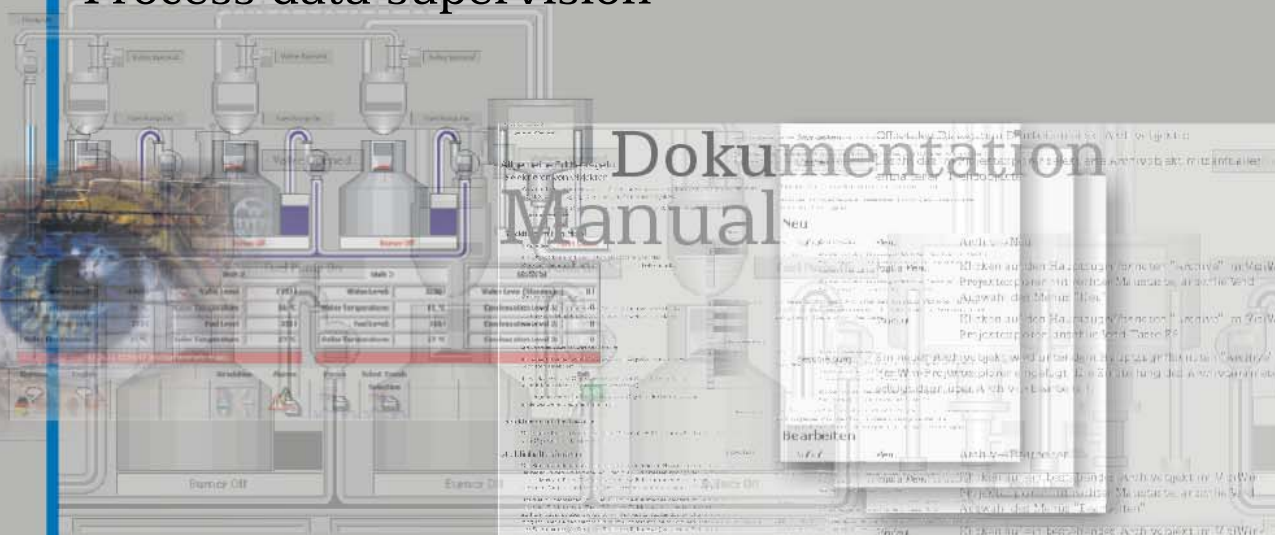


VisiWinNET 2005

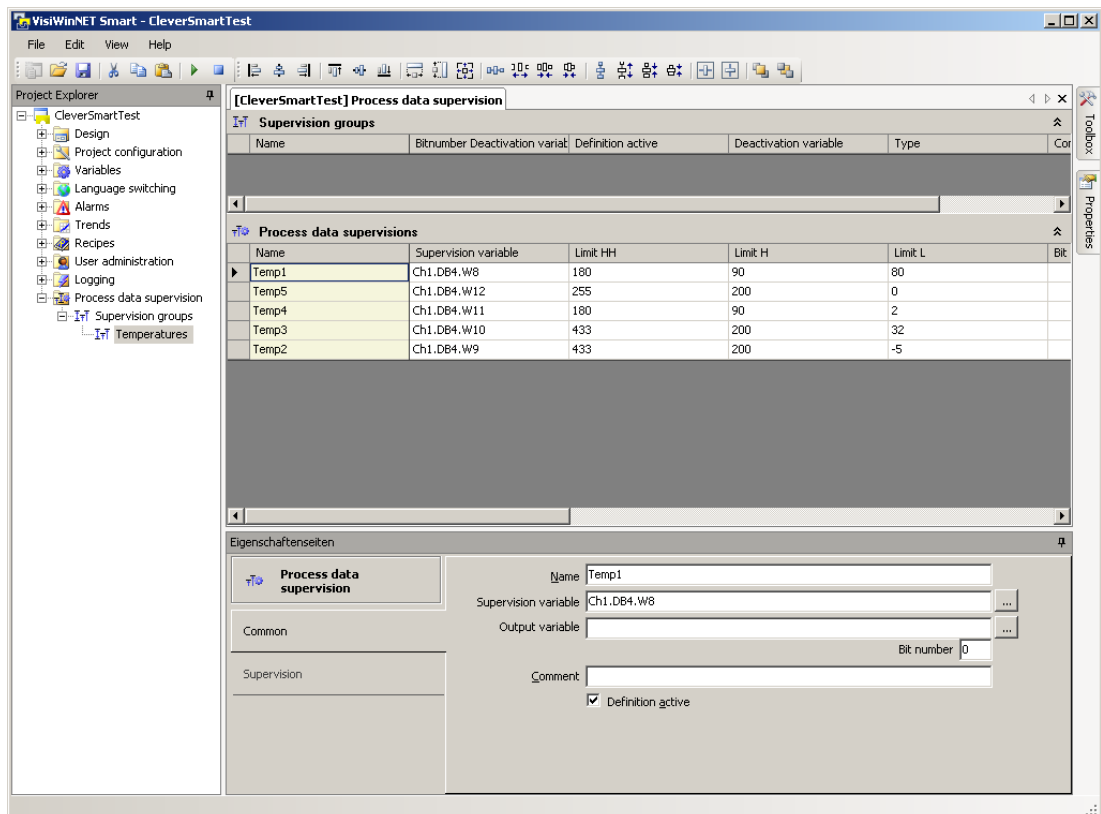
Process data supervision



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VisiWinNET 2005

PROCESS data supervision









The contents of this manual must not otherwise be used without explicit written consent from INOSOFT GmbH.

We have checked the contents of this manual for compliance with the described software. Discrepancies can, however, not be ruled out. For this reason we cannot guarantee full compliance. The contents of the manual are subject to regular checking for necessary updates/amendments. Such amendments will be made in the subsequent edition.

Suggestions for improvement are welcome.

Legend

In order to point out particular paragraphs the following symbols are used in the INOSOFT documentations:

	Attention	Passages with this sign should be read – and observed – with particular attention.
	Hint	Important paragraph “additional information”
	Tip	Many roads lead to Rome; here a shortcut is to be found.
	In work	Functions that are in preparation or already implemented but not yet prepared for documentation.
	Example execute	Instructions to be carried out in an example
	Observe result	Results to be observed with carrying out the exemplary instructions

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1 Preamble

About this manual

This manual contains specific information on the VisiWinNET process data supervision, among others the explanation of the involved components, the operating reference of the editor, and the description of the system definitions.

Questions and Problems

For technical questions and problems please contact your responsible INOSOFT agent or the INOSOFT GmbH Support under +49 (5221) 16 66 02 or email: Support@INOSOFT.com

Frequent questions and problems are dealt with on our homepage under www.inosoft.com

There you will also find a support area for direct contact with our Main Office.

2 Introduction to the Process Data Supervision

The VisiWinNET process data supervision complements the functions of the alarm system. Whilst the alarm system allows only the supervision of individual bits the process data supervision can also supervise analog process variables for e.g. limit value exceedance.

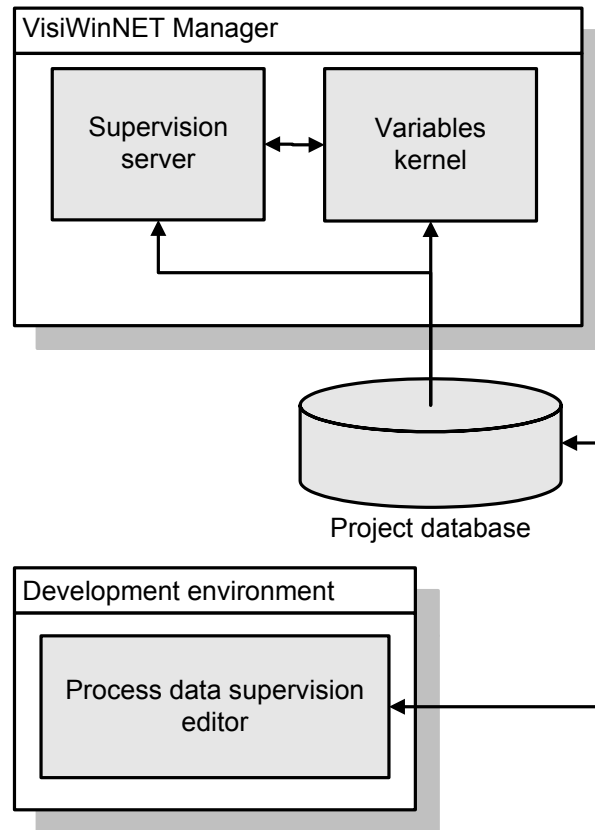
The system contains as a central element the "Supervision" definition. Here it is determined which process factor or which definition is to be supervised by the server component, for which criteria this factor is to be supervised, and what action is to be taken in the case of a supervision event.

With a limit value supervision for example the output of a supervision event (a limit value exceedance) is effected via the manipulation of a further process variable value: if the value of the variable to be monitored exceeds one of the specified limits a bit in the "output variable" is set.

This output variable can be used as a status indication in the application. Determination of the output variable as the event variable of an alarm from the alarm system allows in addition central logging of a monitoring event in the alarm system. In the alarm definition it is then determined with which parameters (text, appearance, acknowledgement, ...) the monitoring event is to be displayed.

The components of the process data supervision are introduced by the block scheme below. Further information about the components is given as cross references.

VisiWinNET Process data supervision components



Variable kernel

The variable kernel as the central data link with the communication components supplies the process data to be monitored and manipulated.

Supervision server

During the initialisation the supervision server reads out the definitions determined in the project database. Process data that are to be monitored are registered for supervision with the variable kernel i.e. that if one of these process values changes the server is notified. Subsequently the server conducts the computations required to detect monitoring events with the help of the supervision criteria determined in the project database.

Process data that are determined in the definitions as output variables are written into the variable kernel when a monitoring event is triggered.

Project database

The project database contains the definitions of the process data supervision. The definitions contain the information as to which process values are to be monitored, under which criteria a monitoring event is to be triggered, and which action is to follow the event. At development time the definitions can be edited with the editor. At runtime the definitions are read by the supervision server. They determine the performance of the supervision server and thus the application.


Editor process data supervision

The editor allows the projection of the process data supervision. By setting definitions in the project database it allows to determine the runtime performance of the supervision server.

3 Projecting

3.1 Start of the process data supervision editor

VisiWinNET provides an editor for the projection of the definitions of the process data supervision. This is integrated with the development environment with the installation of VisiWinNET. The definitions are stored in the project database.

The process data supervision editor is represented in The VisiWinNET Project Explorer by the  symbol.

After the first click of the "Process Data Supervision" node the editor initializes itself: All supervision groups already defined in the project database are added as subnodes to the "Supervision Groups" node beneath.

The table editor is opened through the "Display Editor" context menu or through a click on a process data supervision node in the Project Explorer. The table editor displays the content of the selected node.

"Supervision Groups" node

All supervision groups of the project are displayed in the table editor.

<Supervision Group> node

All supervisions projected in the group are displayed in the table editor.

4 Definitions of the process data supervision

4.1 Process data supervision Definitions and product versions

Below a collection of the definitions of the VisiWinNET process data supervision. In addition it is shown in which product version the definition is present.

Definition	VisiWinNET Enterprise	VisiWinNET Standard	VisiWinNET Compact	VisiWinNET Embedded
Group	✓	✓		
Supervision	✓	✓		

4.2 Group

Supervision groups are displayed in the project explorer under the main access node. They can be nested hierarchically. The maximum nesting depth is eight.

Supervision groups contain amongst others the following functionality:

- They determine the supervision type of the supervisions directly beneath the group.
- They allow hierarchic structuring of the information.
- They allow hierarchic deactivation of all secondary supervision definitions at runtime.

Parameters of the group definition

Name	Description
Bit number of the deactivation variable	Describes the bit that triggers the function in the deactivation variable.
Deactivation variable	Variable to switch all supervisions contained in the group on/off (at runtime).
Definition aktive	Definition valid
Comment	Freely choosable comment
Name	Projecting name (in the project explorer)
Typ	Determines the supervision type.

4.2.1 Edit Groups

Supervision groups are displayed in the Project Explorer directly under the "Process Data Supervision" node. Every group contains:

- an editable set of parameters: Here the name and the type of the supervision group is set.
- subgroups where applicable: Subgroups can be nested hierarchically.
- supervision definitions where applicable: Supervision definitions are displayed in the table editor. They contain the real information of the process data supervision.
- The editor provides the following functions for the projection of supervision groups:

Create new group Through the "New" entry in the context menu of the "Process Data Supervision" node or the existing supervision group node.

Edit group parameters A click on a group node loads the appropriate parameters to the VisiWinNET properties page. Here the parameter values of the group can be edited.

Delete group Through the "Delete" entry in the context menu of a supervision group node a group is deleted. In the process all secondary definitions (subgroups and supervisions) are also deleted from the project.

4.3 Supervision

Supervisions are edited in the index editor. They contain amongst others the following functionality:

- Definition of the variables to be monitored
- Definition of the supervision criteria (depending on the selected type of the superior group)
- Definition of the action in case of a supervision event.

Parameters of the supervision definition (Type=Limit value supervision/range supervision)

Name	Description
Output variable	Name of the variable whose value is manipulated with a supervision event.
Bit number initial variable	Determination of the lowest bit of the bit group to be manipulated in the output variable.
Definition active	Activate/deactivate at development time.
Limit H	1st uppermost limit, exceeding of which by the variable value to be supervised triggers a supervision event.
Limit HH	2nd uppermost limit, exceeding of which by the variable value to be supervised triggers a supervision event.
Limit HHH	3rd uppermost limit, exceeding of which by the variable value to be supervised triggers a supervision event.
Limit L	1st lowermost limit, exceeding of which by the variable value to be supervised triggers a supervision event.
Limit LL	2nd lowermost limit, exceeding of which by the variable value to be supervised triggers a supervision event.
Limit LLL	3rd lowermost limit, exceeding of which by the variable value to be supervised triggers a supervision event.
Hysteresys	Allowance for suppressing disruptions of the supervised value
Comment	Freely choosable comment
Name	Name of definition
Supervision variable	Variable whose value change triggers a supervision event

4.3.1 Edit Supervisions

Supervisions are projected in groups, and displayed in the table editor. Every supervision contains an editable set of parameters. Here the name, the group to be supervised, and where applicable limit and hysteresis values are set.

The table editor of the process data supervision is opened through a click on an appropriate node in the Project Explorer.

The editor provides the following functions for the projection of supervisions:

Create new supervision

Through the "New" entry in the context menu of the table editor a new supervision is added to the project.

Edit parameters

The VisiWinNET properties page displays the parameters of the supervision highlighted in the table editor. Editing a supervision is, however, also allowed directly in the fields of the table editor.

Delete

One or multiple supervisions can be deleted by:

- first highlighting the supervisions to be deleted (click on the selector column at the l.h. table margin, where applicable with the Ctrl or Shift key held down for multiple selection)
- then selecting the "Delete" entry in the context menu of the table editor.

5 Parameters of the process data supervision

5.1 All parameters of the definitions

The description of the parameters contains the following information:

Block	Description
Parameter for	Lists the definitions that contain this parameter.
Description	Delivers a description of the parameter functionality.
Database field	Name of the index column in the VisiWinNET project database.
Data type	Data type of the parameter.
Standard value	Value that is assigned to the parameter after a new definition has been added.
max. length	Maximum length of possible input.

Below an alphabetic collection of the parameters. Provided in addition is the information as to by which VisiWinNET version the parameter is supported.

Parameter name	VisiWinNET Standard	VisiWinNET Compact	VisiWinNET Embedded
Bit number initial variable	✓		
Bit number of deactivation variable	✓		
Comment	✓		
Deactivation variable	✓		
Definition active	✓		
Hysteresys	✓		
Limit H	✓		
Limit HH	✓		
Limit HHH	✓		
Limit L	✓		
Limit LL	✓		
Limit LLL	✓		
Name	✓		
Output variable	✓		
Supervision variable	✓		
Typ	✓		

5.2 Parameters in alphabetic sequence

5.2.1 Bit number

Parameter for	Group, Supervision (Type limit value supervision/range supervision)
Description	The bit number determines which bit(s) of a variable are to represent the function.

Bit number deactivation variable

Parameter for	Group
Description	If the appropriate bit is set all supervisions contained in the group are deactivated.

Bit number output variable

Parameter for	Supervision (Type limit value supervision/are supervision)
Description	With limit value supervision a group of 6 bits in the process variable determined as output variable is manipulated. Every exceedance of either of the 6 limits triggers the setting of the appropriately allocated bit. Via the "Bit number ourput variable" parameter the lowest-value bit of the 6 bits I determined.

5.2.2 Comment

Parameter for	Group, Supervision
Description	A field for freely choosable comments is available for every definition. At development time comments serve as help. They have no function at runtime.

5.2.3 Deactivation variable

Parameter for	Group
Description	The deactivation variable can be used to deactivate all supervisions contained in a group at runtime. When the deactivation variable is set the function of the supervisions is completely switched off.

5.2.4 Definition active

Parameter for	Group, Supervision
Description	The "Definition active" parameter deactivates a definition at development time. The effext is equal to commenting out.

5.2.5 Hysteresis

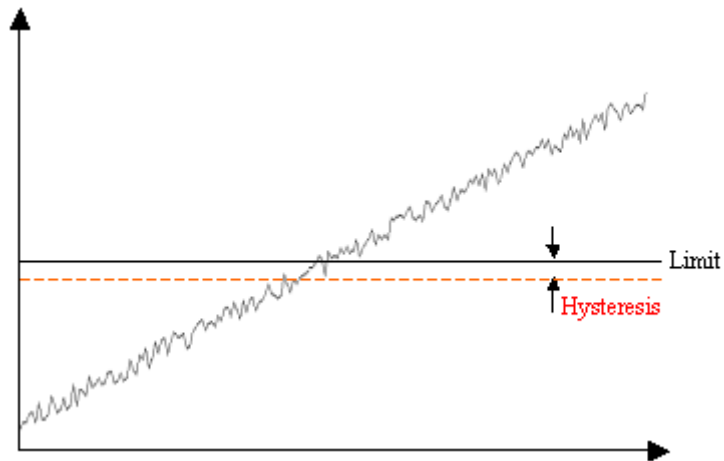
Parameter for

Description

Supervision (Type limit value supervision/range supervision)

Via the hysteresis noise suppression of the reading is possible.

After a limit has been exceeded for the first time the appropriate bit in the initial variable is set. The hysteresis sets the value by which the supervision variable can go back below the limits (e.g. by noise or disturbances) before the appropriate bit is reset.



The graph above shows the typical course of a noise-affected, linear-rising signal. After the limit was exceeded for the first time the value goes back below the limit. The hysteresis suppresses the bit in the output variable being reset, thus preventing the typical flickering of the initial bit in the limit range.

Either a constant value or a variable name are allowed as a hysteresis definition. If a variable is put in the value of the variable is used. Thus, dynamic sampling of the hysteresis at runtime is possible.

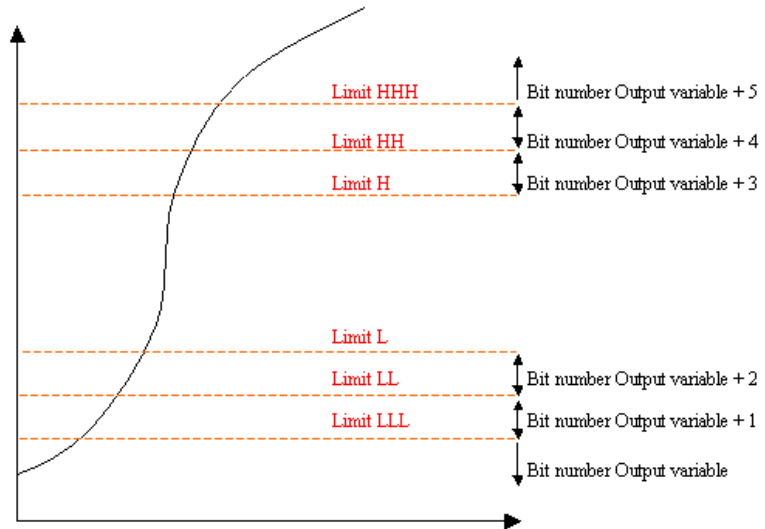
5.2.6 Limits

Parameter for
Description

Supervision (Type limit value supervision/range supervision)

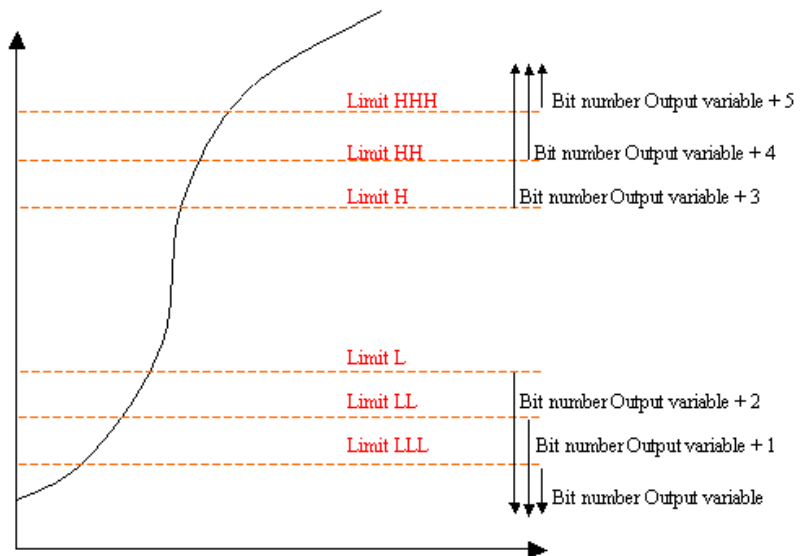
The Limits... parameters determine by which values of the supervision variable bits in the output variable are to be set.

Range supervision



With range supervision the limits divide the variable range into a standard and up to 6 exceedance ranges. In the standard range (between limits L/H) no bit is set. Beyond that, the appropriate bit allocated to the range is set. Thus, only one bit is active at a time.

Limit value supervision



With limit value supervision the 6 limits are monitored individually. If the variable value to be supervised is higher/lower than an upper/lower limit the appropriate bit is set. Thus, multiple bits can be active at the same time.

Remark

The graphs show the connection between limit value exceedance and the bits in the initial variable. If the value of the supervision variable exceeds one of the upper limits (HHH, HH, H) or if it falls short of one of the lower limits (LLL, LL, L) a supervision event is triggered.

Definition of the individual limits is optional. Minimum one limit should be defined (for the definition having a function at all). It is to be observed that the limits are used from "outside" to "inside", i.e. if for example only two upper limits are to be used then values are to be defined for the "Limit HHH" and "Limit HH" parameters. The value for "Limit HHH" must be higher than that for "Limit HH".

Either a constant value or a variable name are allowed as a limit definition. If a variable is put in then the value of the variable is used as a limit value. This allows dynamic sampling of the limit values at runtime.

5.2.7 Name

Parameter for

Group, Supervision

Description

Name of the definition. Generally, the following rule exists: Names must not be double-allocated within a group. "Group" means:

- With supervision groups: the superior supervision group.
- With supervisions: the group in which the supervision is defined.



Analogy to a file system:

The system identifies a definition by the complete path. This way it is possible to save homonymous objects (files) in different groups (indices) but never two homonymous definition within the same group.

5.2.8 Output variable

Parameter for

Supervision (Type limit value supervision/range supervision)

Description

With limit/range supervision a group of 6 bits in the process variable determined as output variable is manipulated.

Every exceedance of either of the 6 limits triggers the setting of the appropriately allocated bit (see parameter "Limits").

With range supervision the limits divide the variable range into a standard, and up to 6 exceedance ranges. In the standard range (between limits L/H) no bit is set. Beyond that the appropriate bit, allocated to the range, is set. Thus, only one bit is active at a time.

With limit supervision the 6 limits are checked individually. If the variable value to be monitored is higher/lower than an upper/lower limit the appropriate bit is set. Thus, multiple bits can be active at the same time..

Typically, an "internal variable" is used as an output variable. If, however, supervision events are to be reported back to the control an external variable (a variable in the appropriate communication component) can also be used.

If central gathering of the supervision events in the alarm system is required the initial variable can be used as the event variable of alarms.

The variable determined as output variable must be of a whole-numbered data type.

5.2.9 Supervision variable

Parameter for

Supervision (Type limit value supervision/range supervision)

Description

Determines the variable whose value is supervised for limit value exceedance.

The supervision variable must represent a numerical value for correct function.

5.2.10 Type

Parameter for

Group

Description

The function of all supervisions projected in the group is determined through the type.

Settings

Type

Value

Description

<no function>

0

No supervisions can be projected in the group. It is, however, possible to add further sub-groups whose type represents a function.

A group of the "<no function>" type is only for structuring the definitions.

Range supervision

1

A variable is supervised. With this, up to 6 limits can be defined. If the variable value exceeds these a bit of a variable determined as "Output variable" is set. With the range supervision the limits divide the values range of the supervision variable into a standard, and up to 6 exceedance ranges. In the standard range (between limits L/H) no bit is set in the output variable. Beyond that the appropriate bit allocated to the range is set. Thus, only one bit is active at a time.

Limit value supervision

2

A variable is supervised. With this, up to 5 limits can be defined.

With limit value supervision the 6 limits are supervised individually. If the variable value to be monitored is higher/lower than any upper/lower limit the appropriate bit is set. Thus, multiple bits can be active at the same time.