

Limits (Common Properties of Control Windows (HI /Monitoring and Controlling of D2000 System Objects))

Value limit describes the status of the value with regard to its defined limits. Limits values are always defined within the configuration of particular object or structure item.

Limits might be defined only for some object types and for object value types.

D2000 system allows to define four limits: **VHL**, **HL**, **LL** and **VLL**. A limit can be defined either directly - by entering a value, or its value can be determined by a system object (dynamic limit) - the button right from the input field.

VHL	Very High Limit - the highest limit
HL	High Limit - high limit
LL	Low Limit - low limit
VLL	Very Low Limit - the lowest limit

Values of individual limits determine the state of the object value according to its value. The relation object value - limits gives 6 possible states.

Limit	Object status according to the relation <i>Object value - Limit</i>
	Above VHL (object value > VHL)
VHL	
	Above HL (HL < object value < VHL)
HL	
	Normal (LL < object value < HL)
LL	
	Below LL (VLL < object value < LL)
VLL	
	Below VLL (object value < VLL)

As the limits can be dynamic, i.e. determined by the object value (real or integer type), a situation, when the relation $VLL < LL < HL < VHL$ is not valid (limit crossing), may occur. The object value is then in the status **Limits Problem**.

Hysteresis

Configuration of the hysteresis relating to the limits defined for the object value. The hysteresis value (in %) is determined by the difference $[V_{HL} - V_{LL}]$. Hysteresis has effect on evaluation of limit states of the object. Hysteresis is demonstrated on the following figure.

The object value is in the status InLimit. This value breaks the limit HL (we assume, that the object value will not break the level $HL + HYSTERESIS$ - it is within the red-colored area in the figure). The value status is still InLimit. The system assigns the value state HL to the object as soon as the value breaks the level $HL + HYSTERESIS$ (the value is above the red-colored area in the figure). This is valid also when the value is decreasing. The value gets the status InLimit as soon as it falls below the level $HL - HYSTERESIS$ (the value is below the red-colored area in the figure).

