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# Defining GUD Variables for Access in uaGate 840D and dataFEED edgeConnector 840D

**data**



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## Defining GUD-Variables for Access in *uaGate 840D* and *dataFEED edgeConnector 840D*

### 1. Introduction

In the NCU numerical control unit of the **SINUMERIK 840D** CNC controller, users can define global variables according to their requirements for individual use in the machine tool. These GUD (Global User Data) variables can be accessed with **uaGate 840D** and **dataFEED edgeConnector 840D**. This requires the definition of a corresponding structure in the associated **.AWL** file.

### 2. Structure for Defining GUD Variables in the **.AWL** File

The definition of a GUD variable in the **.AWL** file uses the following structure:

```
GUD_Variable:
STRUCT
    SYNTAX_ID : BYTE := B#16#82;
    bereich_u_einheit : BYTE;
    spalte : WORD;
    zeile : WORD := W#16#1;
    bausteintyp : BYTE;
    ZEILENANZAHL : BYTE := B#16#1;
    typ : BYTE;
    laenge : BYTE;
END_STRUCT;
```

Here, the individual components of this variable are defined using the following syntax:  
<Component Name> : <Data Type *BYTE* | *WORD*> := <Initial Value>;

All GUD variable components have to be initialized with a value.

### 3. Initial Values of the GUD Variable Components

For the initialization of the individual components of a GUD variable the values according to the following description are used.

#### 3.1 Initial Values of the Component *SYNTAX\_ID*

The component *SYNTAX\_ID* has always to be initialized by the value *B#16#82*. This value must not be changed.

#### 3.2 Initial Values of the Component *bereich\_u\_einheit*

The component *bereich\_u\_einheit* specifies the range of validity of the GUD variable. The *NCK* (entire numerical controller) and *Channel* (one channel of the numerical controller) ranges of validity are supported.

- For defining the *NCK* range of validity the value *B#16#1* has to be assigned.
- For defining the *Channel* range of validity the value *B#16#41* has to be assigned.

#### 3.3 Initial Values of the Component *spalte*

The component *spalte* specifies the line in which the GUD variable is displayed in the **SINUMERIK 840D** user interface.

#### 3.4 Initial Values of the Component *zeile*

The component *zeile* has always to be initialized by the value *W#16#1*. This value must not be changed.

#### 3.5 Initial Values of the Component *bausteintyp*

The component *bausteintyp* specifies the type of data block.

- For the data block *SGUD* the value *B#16#17* has to be assigned.
- For the data block *MGUD* the value *B#16#2D* has to be assigned.
- For the data block *UGUD* the value *B#16#2E* has to be assigned.
- For the data block *GUD4* the value *B#16#2F* has to be assigned.
- For the data block *GUD5* the value *B#16#30* has to be assigned.
- For the data block *GUD6* the value *B#16#31* has to be assigned.
- For the data block *GUD7* the value *B#16#32* has to be assigned.
- For the data block *GUD8* the value *B#16#33* has to be assigned.
- For the data block *GUD9* the value *B#16#34* has to be assigned.
- For the data block *SGUD GD1* the value *B#16#34* has to be assigned.

#### 3.6 Initial Values of the Component *ZEILENANZAHL*

The component *ZEILENANZAHL* has always to be initialized by the value *B#16#1*. This value must not be changed.



### 3.7 Initial Values of the Component *typ*

The component *typ* specifies the datatype of the GUD variable.

- For the data type *Real* the value *B#16#F* has to be assigned.
- For the data type *Char* the value *B#16#3* has to be assigned.
- For the data type *String* the value *B#16#13* has to be assigned.
- For the data type *Bool* the value *B#16#1* has to be assigned.
- For the data type *Integer* the value *B#16#7* has to be assigned.
- For the data type *Axis* the value *B#16#13* has to be assigned.

### 3.8 Initial Values of the Component *laenge*

The component *laenge* specifies the length of the GUD variable.

- For the data type *Real* the value *B#16#8* has to be assigned as length.
- For the data type *Char* the value *B#16#1* has to be assigned as length.
- For the data type *String* the *string length plus 1* has to be assigned as length.  
(e.g. for a string of length 25 the value *B#16#26* has to be assigned as length.)
- For the data type *Bool* the value *B#16#1* has to be assigned as length.
- For the data type *Integer* the value *B#16#4* has to be assigned as length.
- For the data type *Axis* the value *B#16#4* has to be assigned as length.

## 4. Example of a Variable Definition

By the following structure the GUD variable *SampleGUD* is defined. This has a *Channel* range of validity, is displayed in the first line of the user interface, is a *GUD5* data block and has the data type *Integer*.

```
SampleGUD_Variable:
  STRUCT
    SYNTAX_ID : BYTE := B#16#82;
    bereich_u_einheit : BYTE := B#16#41;
    spalte : WORD := W#16#1;
    zeile : WORD := W#16#1;
    bausteintyp : BYTE := B#16#30;
    ZEILENANZAHL : BYTE := B#16#1;
    typ : BYTE := B#16#7;
    laenge : BYTE := B#16#4;
  END_STRUCT;
```

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