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TwinCAT Library for Error Handling

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Library	
Title	Error
Version	3
TwinCAT version	2.11
Name space	–
Author	Daniel Sigg
Description	<p>Handles error conditions for TwinCAT libraries.</p> <p>The library exports an error structure for reporting error conditions. This structure is typically declared as the first element of an interface structure. A handler is provided to report errors. Errors are bit encoded into a DWORD. Error messages for multiple simultaneous conditions are concatenated until the maximum string length is reached. If there are additional error conditions, this is indicated with a '+' character at the end of the string. Multiple error conditions can always be reconstructed from the bit-encoded error code.</p>
Error codes	Library dependent
Library dependencies:	none

User Interface Type TYPE ErrorStruct : STRUCT Flag: BOOL; Code: DWORD; Msg: STRING; END_STRUCT END_TYPE	
Type name	ErrorStruct
Description	Structure in a user interface to define an error condition
Definition	STRUCT
Output Tag	Name: Flad Type: BOOL Description: Flag indicating any error condition
Output Tag	Name: Code Type: DWORD Description: Bit-encoded value describing the error condition(s)
Output Tag	Name: Msg Type: STRING Description: Human readable text describing the error

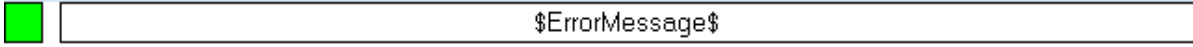
Enum Type TYPE ErrorMethodEnum : (Init, Report, Commit); END_TYPE	
Type name	ErrorMethodEnum
Description	Describes the handler method
Definition	ENUM
Enum tag	Name: Init Description: Initializes the error handler
Enum Tag	Name: Report Description: Reports an error condition
Enum Tag	Name: Commit Description: Commit the error to the interface structure


Function Block FUNCTION_BLOCK ErrorHandlerFB VAR_INPUT ErrorMethod: ErrorMethodEnum; Code: DWORD := 0; Msg: STRING := ""; END_VAR VAR_OUTPUT END_VAR VAR_IN_OUT Error: ErrorStruct; END_VAR	
Name	ErrorHandlerFB
Description	Handles error conditions.
Input argument	Name: ErrorMethod Type: ErrorMethodEnum Description: For initialization, report and commit
Input argument	Name: Code Type: DWORD Description: Error code
Input argument	Name: Msg Type: STRING Description: Error message string
In/out argument	Name: Error Type: ErrorStruct Description: Input and output of error structure

Example:

```
VAR
    ErrorHandler:           ErrorHandlerFB;
END_VAR

(* Initialize *)
ErrorHandler (ErrorMethod := Init, Error := LowNoiseVco.Error);
(* read and process values... report an error... process further... *)
...
IF NOT LowNoiseVco.PowerOk THEN
    ErrorHandler (ErrorMethod := Report, Error := LowNoiseVco.Error,
        Code := 16#01, Msg := 'Power supply voltages out-of-range');
END_IF;
...
(* Finally commit *)
ErrorHandler (ErrorMethod := Commit, Error := LowNoiseVco.Error);
```

Visual	
	
Name	ErrorCodeVis
Description	Displays error message with color indicator
Placeholder	Name: ErrorMesage Type: ErrorStruct Description: Displays the error message
PlaceHolder	Name: Error Type: ErrorStruct Description: Displays the alarm when error for the message is true
PlaceHolder	Name: Code Type: ErrorStruct Description: Code for the error message

Visual	
	
Name	ErrorVis
Description	Displays error message and error code
Placeholder	Name: Error Type: ErrorStruct Description: Alarm is on when error is true; displays bit number; displays error message and include "+" for multiple errors