

Platform MX6

Software option S500

PDF Creation Library

1 Identification

Identification	
Option ID	S500
Order number	S-05000601-0000
Short name	PDF Creation Library
Brief description	With this software option, it is possible to create PDF documents in CODESYS.
Revision ID document	V1.0

2 System requirements and restrictions

System requirements and restrictions	
Supported Platforms and devices	Berghof PLC devices of the MX6 platform (e.g.: MCs, CCs, DCs). Additional information regarding availability and compatibility can be found in compatibility tables section of the price list.
Firmware	MX6 Version 1.18.0 or higher
Additional requirements	— Additional installation of a toolchain package provided by Berghof.
Restrictions	— The additional installation of the PDF Toolchain package reduces the available memory for the application

3 Product Description

With this software option, it is possible to create PDF files from a CODESYS application. The source for the content of the PDF file can be a text file or a HTML file. Alternatively, the PDF document can be created via a PHP API.

4 Quick Start Guide

The following is a brief description of how the PDF functionality can be used under CODESYS.

The function blocks (FB's) of the BghPDFV3 library all work according to a uniform scheme.

It is essential that the function blocks are called cyclically in the program code.

Processing of the program code begins with a rising edge at input "xExecute" of the function block. The current states are displayed, or the result/termination of the action is signalled via the outputs "xDone", "xBusy" and "xError".

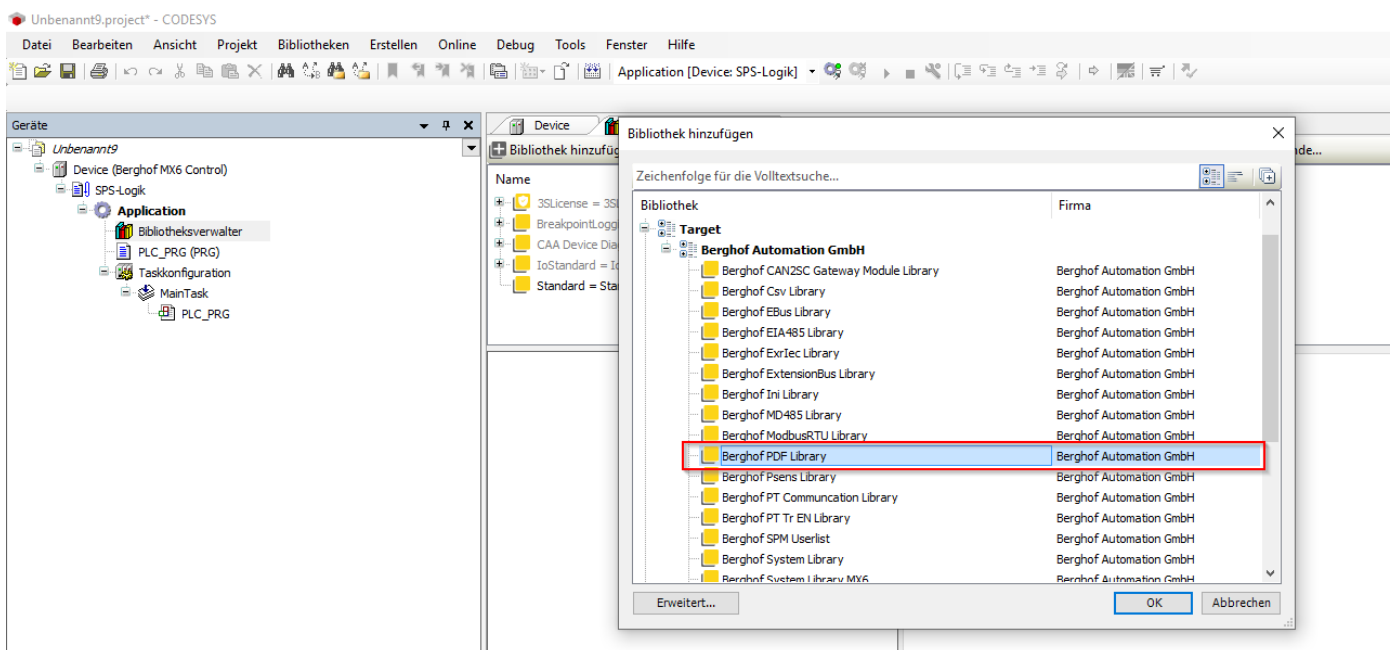
4.1 Installation of PDF Toolchain

The PDF functionality is based on the scripting language PHP5 and the toolchain TCPDF which is published under the Open-Source license LGPL (GNU Lesser General Public License).

The scripting language PHP5 is part of the MX6 firmware. The TCPDF toolchain is provided by Berghof as a packed file "tcpdf.tgz" and must be placed in the directory "/home/plc/applications/PlcLogic" before using the functionality on the controller. For this purpose the FTP server available on the PLC controller (must be activated) or the file transfer available in CODESYS can be used. Another possibility to transfer the file to the PLC controller is the USB update.

4.2 Adding the PDF library

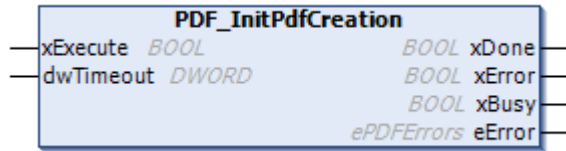
To use the functions of the PDF library, the PDF library must first be added to the CODESYS project.



4.3 Creating the application

4.3.1 PDF_InitPdfCreation

The function block is used to initialize the PDF toolchain and must be called once before creating PDF documents.

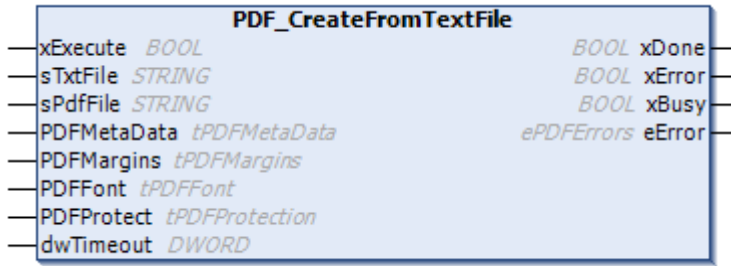


Inputs			
Name	Type	Default value	Description
xExecute	BOOL	FALSE	Starts the FB on rising edge
dwTimeout	DWORD	10 (seconds)	Maximum time the FB may need for the execution

Outputs			
Name	Type	Default value	Description
xDone	BOOL	FALSE	Done Flag
xError	BOOL	FALSE	Error Flag
xBusy	BOOL	FALSE	Busy Flag
eError	ePDFErrors	ERR_PDF_UNDEFINED	Error detection (see ePDFErrors)

4.3.2 PDF CreateFromTextFile

Create a PDF file from a text file.

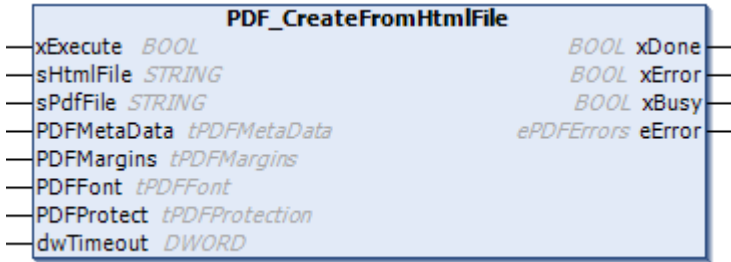


Inputs			
Name	Type	Default value	Description
xExecute	BOOL	FALSE	Starts the FB on rising edge
sTxtFile	STRING	-	Absolute path + file name of the text file
sPdfFile	STRING	-	Absolute path + file name of the PDF file
PDFMetaData	<u>tPDFMetaData</u>		PDF Meta Data (see tPdfMetaData)
PDFMargins	<u>tPDFMargins</u>		Border spacing of the text block (see tPdfMargins)
PDFFont	<u>tPDFFont</u>		Typeface to be used
PDFProtect	<u>tPdfProtection</u>		PDF protection
dwTimeout	DWORD	10 (seconds)	Maximum time the FB may need for the execution

Outputs			
Name	Type	Default value	Description
xDone	BOOL	FALSE	Done Flag
xError	BOOL	FALSE	Error Flag
xBusy	BOOL	FALSE	Busy Flag
eError	<u>ePDFErrors</u>	ERR_PDF_UNDEFINED	Error detection (see ePDFErrors)

4.3.3 PDF CreateFromHtmlFile

Create a PDF file from a HTML file.



Inputs			
Name	Type	Default value	Description
xExecute	BOOL	FALSE	Starts the FB on rising edge
sHtmlFile	STRING	-	Absolute path + file name of the HTML file
sPdfFile	STRING	-	Absolute path + file name of the PDF file
PDFMetaData	tPDFMetaData		PDF Meta Data (see tPdfMetaData)
PDFMargins	tPDFMargins		Border spacing of the text block (see tPdfMargins)
PDFFont	tPDFFont		Typeface to be used
PDFProtect	tPDFProtection		PDF protection
dwTimeout	DWORD	10 (seconds)	Maximum time the FB may need for the execution

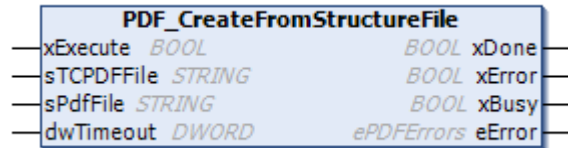
Outputs			
Name	Type	Default value	Description
xDone	BOOL	FALSE	Done Flag
xError	BOOL	FALSE	Error Flag
xBusy	BOOL	FALSE	Busy Flag
eError	ePDFErrors	ERR_PDF_UNDEFINED	Error detection (see ePDFErrors)

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The HTML code must be formatted correctly - try checking it with an application such as HTML-Tidy. Supported tags are: a, b, blockquote, br, dd, del, div, dl, dt, em, font, h1, h2, h3, h4, h5, h6, hr, i, img, li, ol, p, pre, small, span, strong, sub, sup, table, tcpdf, td, th, thead, tr, tt, u, ul. All HTML attributes must be enclosed in double quotes.

4.3.4 PDF CreateFromStructureFile

Create a PDF file from a TCPDF file.



Inputs			
Name	Type	Default value	Description
xExecute	BOOL	FALSE	Starts the FB on rising edge
sTCPDFFile	STRING	-	Absolute path + file name of the TCPDF file
sPdfFile	STRING	-	Absolute path + file name of the PDF file
dwTimeout	DWORD	10 (Sekunden)	Maximum time the FB may need for the execution

Outputs			
Name	Type	Default value	Description
xDone	BOOL	FALSE	Done Flag
xError	BOOL	FALSE	Error Flag
xBusy	BOOL	FALSE	Busy Flag
eError	<u>ePDFErrors</u>	ERR_PDF_UNDEFINED	Error detection (see <u>ePDFErrors</u>)

HINWEIS

The documentation of the TCPDF toolchain can be found at the following link:

<https://tcpdf.org/docs/srcdoc/tcpdf/class-TCPDF/>

Examples of different TCPDF solutions can be viewed under the following link:

<https://tcpdf.org/examples/>

ATTENTION

Errors in the TCPDF syntax cause creation of PDF documents to fail. The error output of TCPDF is in the specified PDF file.

5 Examples

5.1 Text to PDF

```

1 PROGRAM PLC_PRG
2 VAR
3     nRet      : BGHPDF.ePDFErrors;
4     Margins   : BGHPDF.tPDFMargins;
5     Meta      : BGHPDF.tPDFMetaData;
6     Font      : BGHPDF.tPDFFont;
7
8     xExecute  : BOOL:=FALSE;
9     xInit     : BOOL:=TRUE;
10    pdf_init   : PDF_InitPdfCreation;
11    pdf_create_txt : PDF_CreateFromTextFile;
12    xError     : BOOL;
13    xFinished  : BOOL;
14 END VAR

```

```

1
2 pdf_init.xExecute:=xInit;
3 pdf_init();
4
5 IF pdf_init.xDone THEN
6
7     (* PDF Seitenränder *)
8     Margins.PDFMarginBottom := 10;
9     Margins.PDFMarginLeft  := 10;
10    Margins.PDFMarginRight := 10;
11    Margins.PDFMarginTop   := 10;
12    (* PDF Meta *)
13    Meta.PDFAuthorName := 'Test Author';
14    Meta.PDFCreatorName := 'BGH_MX6_PLC';
15    Meta.PDFKeywords := 'PDF, Test, etc';
16    Meta.PDFSubject := 'das Thema';
17    Meta.PDFTitle := 'Der PDF Titel';
18    (* PDF Schriftsatz *)
19    Font.PDFFontSize := 6;
20    Font.PDFSelectedFont := BGHPDF.ePDFFontsAvailable.PDF_FONT_COURIER;
21
22    pdf_create_txt.sTxtFile:= '/home/plc/applications/CODESYSControl.cfg';
23    pdf_create_txt.sPdfFile:= '/home/plc/applications/test_txt_4.pdf';
24
25    pdf_create_txt.PDFMetaData:= Meta;
26    pdf_create_txt.PDFMargins:= Margins;
27    pdf_create_txt.PDFFont:= Font;
28
29    IF pdf_create_txt.xDone THEN
30        xFinished:=TRUE;
31    END_IF
32    pdf_create_txt();
33 ELSIF pdf_init.xError THEN
34    xError:=TRUE;
35 END_IF

```

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Vertriebsteam | T +49.7121.894-131 | controls@berghof.com