



PLCopen - Technical Committee 5

Safety Software

Technical Specification

Part 1: Concepts and Function Blocks

Version 1.0 – Official Release Compliance Statement Only

DISCLAIMER OF WARRANTIES

THIS DOCUMENT IS PROVIDED ON AN "AS IS" BASIS AND MAY BE SUBJECT TO FUTURE ADDITIONS, MODIFICATIONS OR CORRECTIONS. PLCOPEN HEREBY DISCLAIMS ALL WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR SUITABILITY FOR A PARTICULAR PURPOSE, FOR THIS DOCUMENT. UNDER NO CIRCUMSTANCES WILL PLCOPEN BE RESPONSIBLE FOR ANY LOSS OR DAMAGE ARISING OR RESULTING FROM ANY DEFECT, ERROR OR OMISSION IN THIS DOCUMENT OR FROM ANY USE OF OR RELIANCE ON THIS DOCUMENT.

Copyright © 2003 - 2006 by PLCopen. All rights reserved.

Date: April 20, 2006.

Appendix 1. Compliance Procedure and Compliance List

Listed in this Appendix are the requirements for the compliance statement from the supplier of the safety specification. The compliance statement consists of two main groups:

1. Reduction in programming languages and functionality (see "Appendix 1.2 Reduction in the Development Environment").
2. The definition of a set of function blocks with safety-related functionality (see "Appendix 1.3 Overview of the Function Blocks").

The supplier must fill out the tables for their implementation, according to their product, committing their support to the specification itself.

By submitting these tables to PLCopen, and following approval by PLCopen, the list will be published on the PLCopen website (<http://www.plcopen.org>) as specified in "Appendix 2 The PLCopen Safety Logo and Its Use" below.

In addition to this approval, the supplier is provided with access and usage rights for the PLCopen Safety logo, as described in Appendix 2 The PLCopen Safety Logo and Its Use.

Appendix 1.1. Supplier Statement

Supplier name	KW-Software GmbH
Supplier address	Lagesche Str. 32
City	32657 Lemgo
Country	Germany
Phone	+49-5261-93730
Fax	+49-5261-937326
Website	www.kw-software.com
Product name	SAFEPROG
Product version	2.3
Release date	11/2006
Certified by	BGIA / TÜV Rheinland

I hereby state that the following tables as filled out and submitted correspond to our product and the accompanying user manual, as stated above.

Name of representative:

Boris Waldeck

Date of signature (dd/mm/yyyy):

20.04.2006

Signature:



Appendix 1.2. Applicable reductions in the Development Environment

Supported User Levels (See Section 4)	Supported	Comments (< 48 Characters)
Basic level	x	
Extended level	x	
System level	x	Guide to enable OEM

Table 1: Supported user levels

Supported Programming Languages	Supported	Comments (< 48 Characters)
Function Block Diagram, FBD	x	
Ladder Diagram, LD	x	

Table 2: Supported programming languages

Supported Data Types	Supported	Comments (< 48 Characters)
SAFEBOOL	x	Also: SAFEINT, SAFEWORD, SAFETIME
BOOL	x	
INT	x	
DINT		
REAL		
WORD	x	
TIME	x	
Other ANY_BIT		Specify which
Other ANY_INT		Specify which
Other ANY_REAL		Specify which
ANY_DATE		Specify which
STRING		Specify which

Table 3: Supported data types

Supported Functions and FBs – Basic Level	Supported	Comments (< 48 Words)
AND	x	
OR	x	
Type Conversion functions	x	SAFEBOOL TO BOOL
TON	x	
TOF	x	
TP	x	
CTU	x	
CTD	x	
CTUD	x	
Others?		Specify which

Table 4: Supported Functions and Function Blocks at Basic Level

Supported Functions and FBs – Extended Level	Supported	Comments (< 48 Words)
AND	x	
OR	x	
XOR	x	
NOT	x	
ADD	x	
MUL		
SUB	x	
DIV		
GT, GE, EQ, LE, LT, NE	x	GT, GE, EQ, LE, LT, NE
Selection functions		
Type conversion functions	x	SAFEBOOL TO BOOL
Time functions		
TON	x	
TOF	x	
TP	x	
CTU	x	
CTD	x	
CTUD	x	
Bistable FBs	x	SR, RS
Edge detection	x	R_TRIG, F_TRIG
Others?		

Table 5: Supported Functions and Function Blocks at Extended Level

Appendix 1.3. Overview of the supported Function Blocks

Function Blocks	Supported	Comments (<= 48 Characters)
SF_Equivalent	x	
SF_Antivalent	x	
SF_ModeSelector		
SF_EmergencyStop	x	
SF_ESPE	x	
SF_SafeStop1		
SF_SafeStop2		
SF_SafetyGuardMonitoring	x	
SF_SafelyLimitedSpeed		
SF_TwoHandControlTypeII		
SF_TwoHandControlTypeIII		
SF_GuardLocking	x	
SF_TestableSafetySensor	x	
SF_MutingSeq		
SF_MutingPar		
SF_MutingPar_2Sensors		
SF_EnableSwitch		
SF_SafetyRequest		
SF_OutControl	x	
SF_EDM	x	

Table 6: Overview of the function blocks

Appendix 2. The PLCopen Safety Logo and Its Use

For quick identification of compliant products, PLCopen has developed a logo for the Safety Specification:



Figure 1: The PLCopen Safety logo

This logo is owned and trademarked by PLCopen.

In order to use this logo free of charge, the relevant company must meet all of the following requirements:

1. The company must be a voting member of PLCopen;
2. The company must comply with the existing specification, as specified by the PLCopen Technical Committee 5 - Safety, and as published by PLCopen, and of which this statement is a part;
3. This compliance is submitted in writing by the company to PLCopen, clearly stating the applicable software package and the supporting elements of all the specified tables, as specified in this document;
4. The company is aware that this compliance is only a statement of the supporting elements as specified in this document. In particular, the company is aware that this statement does not have any relationship to the implementation itself, nor the fulfillment of any requirements as specified in any safety standard, safety procedure, or development procedure, and does not state anything with regard to the quality of the product itself, nor certification procedures performed by a third party;
5. In the event of non-fulfillment, which must be decided by PLCopen, the company will receive a written statement to this effect from PLCopen. The company will have a period of one month to either adapt their software package in such a way that it is compliant, i.e., by issuing a new compliance statement, or removal of all reference to the specification, including the use of the logo, from all their specifications, be they technical or promotional material;
6. The logo must be used as is - i.e., in its entirety. It may only be altered in size as long as the original scale and color settings are maintained;
7. The logo must be used in the context of PLCopen Safety.