PLCopen - Technical Committee 5
–
Safety Software

Technical Specification

Part 1: Concepts and Function Blocks

Version 1.0 – Official Release
Compliance Statement Only

Date: April 20, 2006.

Total number of pages: 7

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	Kendrion Kuhnke Automation GmbH
Supplier address	Lütjenburger Strasse 101
City	23714 Malente
Country	Germany
Phone	+49 4523 402 0
Fax	+49 4523 402-201
Website	www.kuhnke.kendrion.com
Product name	Kuhnke FIO Safety PLC
Product version	1.0
Release date	2017-07-04
Certified by	TÜV Rheinland Industrie Service GmbH

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:

Andreas von Döhren

Date of signature (dd/mm/yyyy):

11.07.2017

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		How is it supported?

Table 1: Supported user levels

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

Table 2: Supported programming languages

Supported Data Types	Supported	Comments (< 48 Characters)
SAFEBOOL	X	
BOOL	X	
INT	X	
DINT	X	
REAL		
WORD	X	
TIME		
Other ANY_BIT	X	BYTE, SAFEBOOL, SAFEWORD
Other ANY_INT	X	SAFEINT, SAFEDINT
Other ANY_REAL		Specifiy which
ANY_DATE	X	SAFETIME
STRING		Specifiy which

Table 3: Supported data types

Supported Functions and FBs – Basic Level	Supported	Comments (< 48 Words)
AND	X	
OR	X	Operation of only SAFEBOOL permitted - see Ch. 4.4
Type Conversion functions		Specifiy which
TON	X	
TOF	X	
TP	X	
CTU	X	
CTD	X	
CTUD	X	
Others?		Specifiy 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	X	
SUB	X	
DIV	X	
GT, GE, EQ, LE, LT, NE	X	all supportet
Selection functions		SEL, MUX
Type conversion functions	X	BOOL_TO_INT; BOOL_TO_DINT; BOOL_TO_TIME; BOOL_TO_WORD; BYTE_TO_INT; BYTE_TO_DINT; BYTE_TO_TIME; BYTE_TO_WORD; DINT TO_BOOL; DINT_TO_BYTE; DINT_TO_INT; DINT_TO_TIME; DINT_TO_WORD; DINT_TO_DWORD; DWORD_TO_DINT; DWORD_TO_TIME; INT_TO_BOOL; INT_TO_BYTE; INT_TO_DINT; INT_TO_DWORD; INT_TO_TIME; INT_TO_WORD; TIME_TO_BOOL; TIME_TO_BYTE; TIME_TO_INT; TIME_TO_DINT; TIME_TO_WORD; TIME_TO_DWORD; WORD_TO_BOOL; WORD_TO_BYTE; WORD_TO_DINT; WORD_TO_INT; WORD_TO_TIME; WORD_TO_DWORD
Time functions		Specify which
TON		
TOF		
TP		
CTU		
CTD		
CTUD		
Bistable FBs		Specify which
Edge detection		Specify which
Others?		Specify which

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	X	
SF_EmergencyStop	X	
SF_ESPE	X	
SF_SafeStop1		
SF_SafeStop2		
SF_SafetyGuardMonitoring	X	
SF_SafelyLimitedSpeed		
SF_TwoHandControlTypeII	X	
SF_TwoHandControlTypeIII	X	
SF_GuardLocking	X	

SF_TestableSafetySensor	X	
SF_MutingSeq	X	
SF_MutingPar	X	
SF_MutingPar_2Sensors	X	
SF_EnableSwitch	X	
SF_SafetyRequest	X	
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:
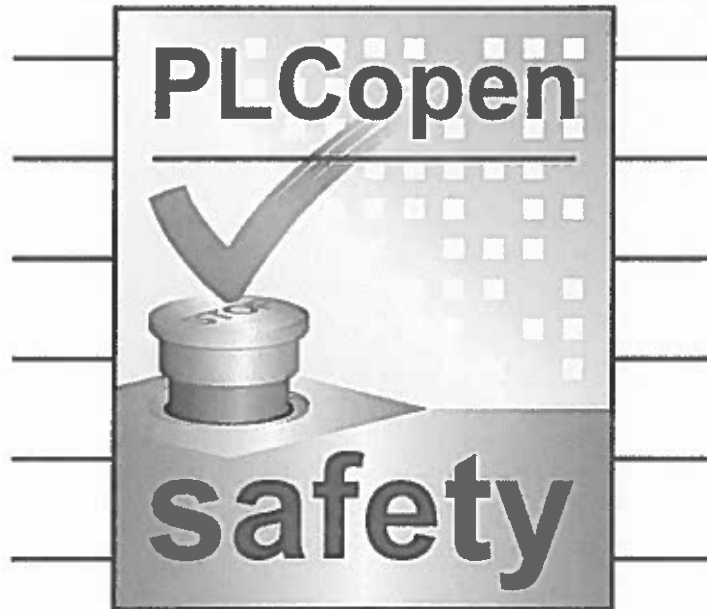

Figure 1: The PLCopen Safety logo

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.