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.

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	Bachmann electronic GmbH
Supplier address	Kreuzäckerweg 33
City	A-6800, Feldkirch
Country	Austria
Phone	+43 (0) 55 22 / 34 97 - 0
Fax	+43 (0) 55 22 / 34 97 - 43
Website	http://www.bachmann.info
Product name	Safety Developer
Product version	ab Bachmann SolutionCenter V1.41
Release date	08/2009
Certified by	TÜV SÜD, Ridlerstrasse 65, 80339 München

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: Bernhard Zangerl (CEO)

Date of signature (dd/mm/yyyy): 21.09.2009

Signature:

Appendix 1.2. Applicable reductions in the Development Environment

Supported User Levels (See Section 4)	**Supported**	**Comments (< 48 Characters)**
Basic level	no	
Extended level	yes	Bachmann electronics provides certified vendor function blocks. The programming tool allows to combine standard function blocks to custom function blocks ("compounds")
System level	no	

Table 1: Supported user levels

Supported Programming Languages	**Supported**	**Comments (< 48 Characters)**
Function Block Diagram, FBD	yes	FBD editor with freely positionable function blocks
Ladder Diagram, LD	no	

Table 2: Supported programming languages

Supported Data Types	**Supported**	**Comments (< 48 Characters)**
SAFEBOOL	yes	Attribute "SAFE" as additional part of the data type
BOOL	yes	See TC5, Page 17
INT	yes	32 bit signed
DINT	no	
REAL	no	
WORD	no	
TIME	yes	32 bit signed, values in milliseconds
Other ANY_BIT	no	
Other ANY_INT	no	
Other ANY_REAL	no	
ANY_DATE	no	
STRING	no	

Table 3: Supported data types

Supported Functions and FBs – Basic Level	**Supported**	**Comments (< 48 Words)**
AND	no	No specific support for basic level, see advanced level
OR	no	
Type Conversion functions	no	
TON	no	
TOF	no	
TP	no	
CTU	no	
CTD	no	
CTUD	no	
Others?	no	

Table 4: Supported Functions and Function Blocks at Basic Level

Supported Functions and FBs – Extended Level	Supported	Comments (< 48 Words)
AND	yes	
OR	yes	
XOR	yes	
NOT	yes	
ADD	yes	
MUL	yes	
SUB	yes	
DIV	yes	
GT, GE, EQ, LE, LT, NE	yes	
Selection functions	yes	SEL, OPTION
Type conversion functions	yes	INT_TO_TIME, TIME_TO_INT
Time functions	no	
TON	yes	
TOF	yes	
TP	yes	
CTU	yes	
CTD	yes	
CTUD	yes	
Bistable FBs	yes	RS, SR
Edge detection	yes	F_TRIG, R_TRIG
Others?	yes	Conversion from SAFE to NORMAL and NORMAL to SAFE values (latter case emits a warning)

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	yes	
SF_Antivalent	yes	
SF_ModeSelector	yes	
SF_EmergencyStop	yes	
SF_ESPE	yes	
SF_SafeStop1	no	
SF_SafeStop2	no	
SF_SafetyGuardMonitoring	yes	
SF_SafelyLimitedSpeed	no	
SF_TwoHandControlTypeII	yes	
SF_TwoHandControlTypeIII	yes	
SF_GuardLocking	yes	
SF_TestableSafetySensor	yes	
SF_MutingSeq	yes	
SF_MutingPar	yes	
SF_MutingPar_2Sensors	yes	
SF_EnableSwitch	yes	
SF_SafetyRequest	yes	
SF_OutControl	yes	
SF_EDM	yes	

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.