

Man-machine interfaces for safety-related controls

■ Programming support environments

definable authorizations, access rights (for programming, commissioning, maintenance)

separation of standard and safety program parts with well-defined data exchange

graphic programming by use of standardized safety function blocks

subset of languages, functions and datatypes adapted to user/programmer level

user assistance (wizards, tooltips, combo boxes, context-sensitive online help, ...)

interactive dialogs

function blocks with failure detection capabilities and defined error behavior

built-in error detection (programming rules, syntax, valid variable declaration, ...)

"SAFEBOOL" datatype

detailed diagnostics

Project tree window

Worksheet area

Message window

Cross reference window

Bus Navigator Window

Status bar

Menu

Toolbars

Variable

Global decl.

Compile

Variable st...

Safe PLC

IN_ACTIVATED_READY

IN_I_1

OUT_Q

IN_RESET

OUT_ERROR

OUT_DIAG

Diag NotAus Diagnose

IN_DIAG NOT_ACTIVE

NotAus_nicht_aktiv

NotAus_aktiv

NO_RESET

Reset_nicht_durchgefuehrt

NotAus_betaetigt

Diag Tuer Diagnose

IN_DIAG NOT_ACTIVE

Tuer_nicht_aktiv

Tuer_aktiv

Global variables declarations successfully saved.
CHECK CHANGED DECLARATIONS IN THE WORKSHEET!

Process Data Item

Name	I/Q	Data	Byte.Bit	Fun	Variable
DD16	I	WORD	0		
DD16	Q	WORD	0		
DD16	I	BOOL	0,0		NotAusSchalt
DD16	I	BOOL	0,0		NotAusSchalt

Programmers support for safe application software development

- ✓ straightforward programming: subset of functions, standardized function blocks
- ✓ easy application program generation: intuitive operation, user guidance, etc.
- ✓ early error detection at the programming and variable input stage
- ✓ program verification facilities: e.g. simulation, debug functions, online checklist
- ✓ comprehensible, comprehensive and pinpoint diagnostics

■ New: standardization for safety-related application programming



TC5 - Safety
 definition of language subsets
 programming guidelines
 definition of a function block library
 style guide for safety function blocks
www.plcopen.org

■ Missions of the BGIA: research, testing and certification, participation in standardization, technical information and expertise
www.hvbg.de/bgia



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