# FS-PLC Designer | development environment

Area of application

The customer-specific safety controllers "FS-PLCx" from ACD Antriebstechnik GmbH are configured and programmed with the "FS-PLC Designer", an own developed tool.

The "**FS-PLC Designer**" is a **tool for safely configuring** the …

- … customer-specific FS-PLC (PLC target system)
- … FSoE master connection, incl. safety parameter und SRA parameter
- … PLC input and output signals
- … safe creation of the PLC program

The function block diagram (FBD) according to EN 61131-3 is used for programming. Libraries with simple and complex function blocks are provided for the implementation of safety functions. The PLC project is transferred to the PLC target via USB or EtherCAT.


FS-PLC Designer

USB/EtherCAT

FS-PLCx Target
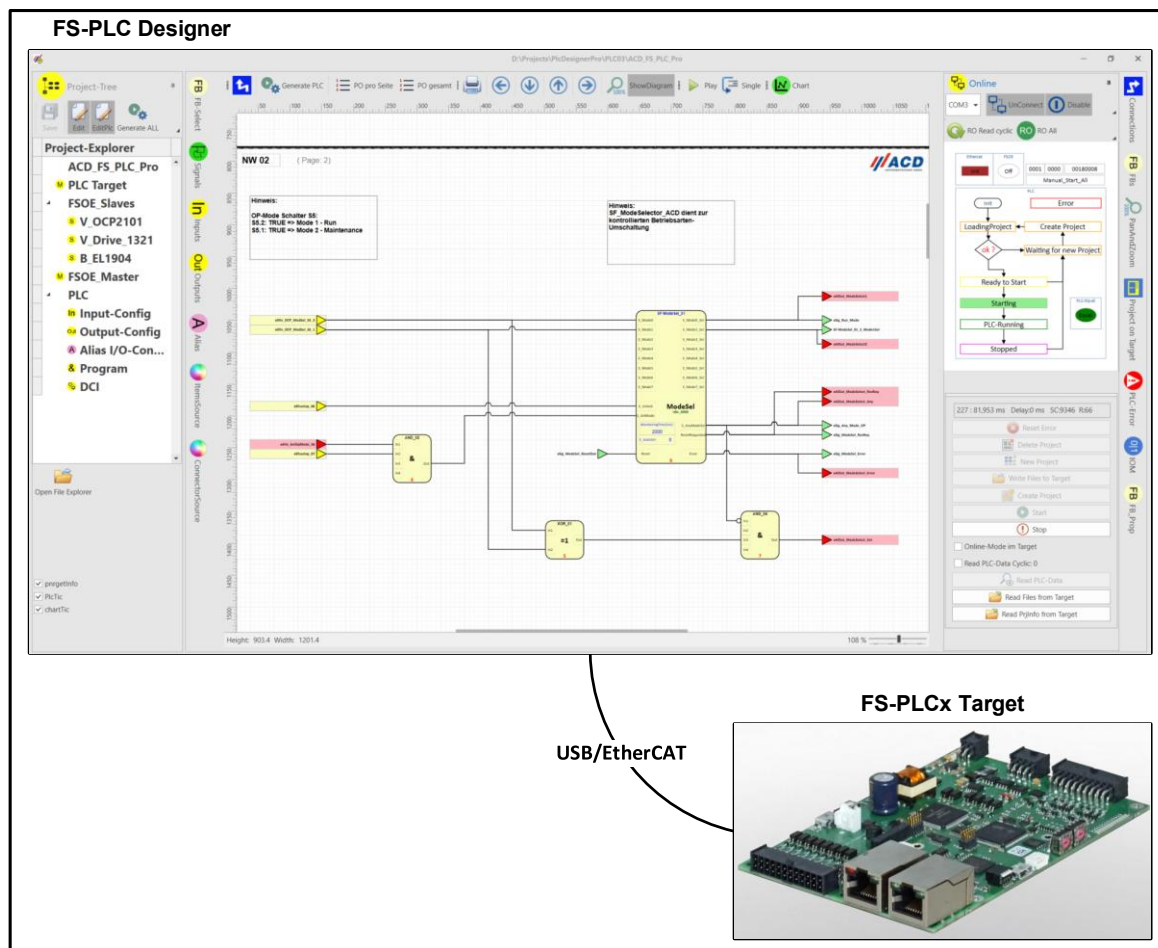
Technical specifications

Safe Function (SF) blocks the following basic functions:

- Logic functions, such as AND, OR and XOR
- Time functions, such as TON, TOF and TP
- flip-flop functions, such as SR and RS
- Edge-triggered functions, such as F_Trig and R_Trig

Additional complex Safe Function (SF) blocks for special use in machine controls

- Equivalent and Antivalent function with the
  function block   *SF_Equivalent_ACD*

- Emergency stop function with monitoring with the
  function blocks   *SF_EmergencyStop_ACD*
                                    SF_EDM_ACD

- Two-hand control with the function blocks
                                    SF_TwoHandControlTypeII_ACD
                                    SF_TwoHandControlTypeIII_ACD

- Safety gate monitoring and safe guard locking with the
  function blocks   *SF_Guard_ACD*
                                    SF_GuardLocking2_ACD

- Safe operation mode selector with the function block
                                    SF_ModeSelector_ACD

- Three-stage enabling switch with the function blocks
                                    SF_EnableSwich_ACD
                                    SF_EnableSwitch2_ACD

- Reset button signal monitoring with the function block
                                    SF_ResetButton_ACD
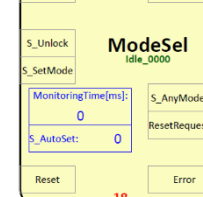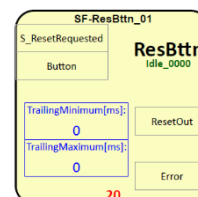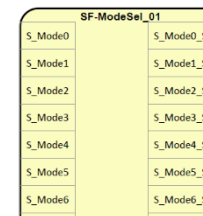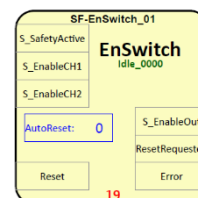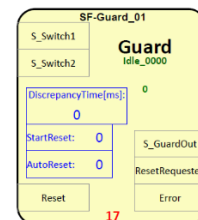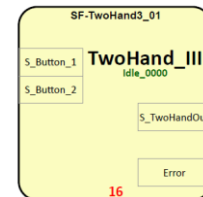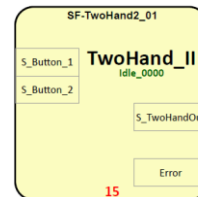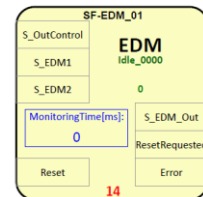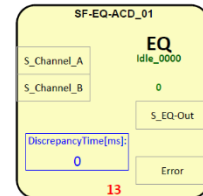
The design and function of the complex function blocks are based on the PLCopen specification:
PLCopen - Technical Committee 5 - Safety Software
Technical Specification Part 1: Concepts and Function Blocks
Version 2.01 – Official Release
February 25, 2020