

e-Vision SIL2

Multi-platform

Available

Reliable

Safe

Flexible



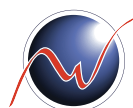
Two redundant e-Vision SIL2 8"

CENTRALP and CLEARSY companies are joining efforts to provide a SIL2 DMI for ERTMS or other safety related applications

➤ *CENTRALP is specialised in the design and production of embedded electronic systems*

➤ *CLEARSY is specialised in the design of safety critical systems and software*

E-Vision SIL2 is a HMI platform in 8", 10" or 12", with or without redundancy, which provides SIL2 display, interaction and computation. It is available with an ETCS baseline 3 DMI application v3.4.0 or as a generic platform for your application.



CENTRALP



CLEARSY
SYSTEMS ENGINEERING

e-Vision platform characteristics

- ▶ Multiple screen : 8", 10.4", 12" sizes with the same architecture
- ▶ Display resolution : 640 x 480 with a luminance of 1500 cd/m², 1024x768 with 800 cd/m², or upon request 800 x 600
- ▶ CPU cortex A9 iMX6 800 MHz dual core (quad core upon request)
- ▶ Memory : 2 Gb DDR3, eMMC 8 Gb
- ▶ Capacitive touchscreen or soft keys
- ▶ Signalling LEDs
- ▶ Light sensor
- ▶ 1x Audio output 10W

Interfaces

- ▶ 2x Ethernet 100 baseT
- ▶ MVB or Profibus
- ▶ 1x RS 232/422/485, isolated 1500 Vdc
- ▶ 2x USB

Dimensions of the 10.4"

- ▶ Front panel dimensions : 214 x 300 x 8 mm
- ▶ Rear panel dimensions: 202 x 270 x 58 mm
- ▶ 3kg

Power Supply characteristics

- ▶ Nominal supply voltage: 24 Vdc to 110 Vdc
- ▶ Nominal power: 25 Watts over Vbat
- ▶ Inrush current (25°C): < 10 A max

Software technology

- ▶ OS : Linux with Yocto BSP
- ▶ Programming Language : C and C++
- ▶ OpenGL graphic rendering

Generic SIL2-DMI product

- ▶ Compliant with a SIL2 safety level on display and inputs (SUBSET 091)
- ▶ Provides safety layer for a SIL2 environment
- ▶ Developed according to CENELEC 50126, 128, 129 Standards
- ▶ Developed with an open and modern architecture to ease further updates/upgrades
- ▶ SIL0 and SIL2 segregation to allow SIL0 COTS applications

ETCS DMI application

- ▶ Compliant with baseline 3 version 3.4.0
- ▶ Developed with output on single or dual screen to increase the availability

Highly configurable software

- ▶ Speed dial range
- ▶ Languages
- ▶ Sounds
- ▶ Icons
- ▶ Texts



Innovative SIL2 Linux based console

Cost effective development on Linux environment
Custom SIL 2 safety layer over the Linux kernel
Provides SIL2 guarantees against :

- ▶ Corruption of the applicative programme
- ▶ Memory corruption
- ▶ Clock drift
- ▶ Corruption by a Linux kernel fault



Generic SIL2 platform

Flexible SIL2 display control

- ▶ Define safety-critical display area with predefined image checking
- ▶ Safety-critical display of safe widget
- ▶ Change non-safety related area without new certification

Protected touchscreen or softkey input
Safe generic container for application data & state
Protected against : RAM fault, SIL0 fault and OS fault



Baseline 3 ETCS DMI

Standard 10.4" display

- ▶ Customisable to given EVC/DMI interface
- ▶ Easy configurable

Double 8" DMI

- ▶ High-availability with Fallback mode to keep train running in case of 1oo2 display failure
- ▶ Compliant to ERA Baseline3 in normal mode with 2x8" surface



Multi-platform System

System development compatible with different screen sizes and interfaces
You can use the same software on the different E-Vision platforms



e-Vision SIL2 is compliant with

UIC612 front panel
EN50155 TX classification
EN50121
EN45545 HL3



Reliability

MTBF 150 000h (IEC 62380)
Life time 15 years