TZ
electronic systems

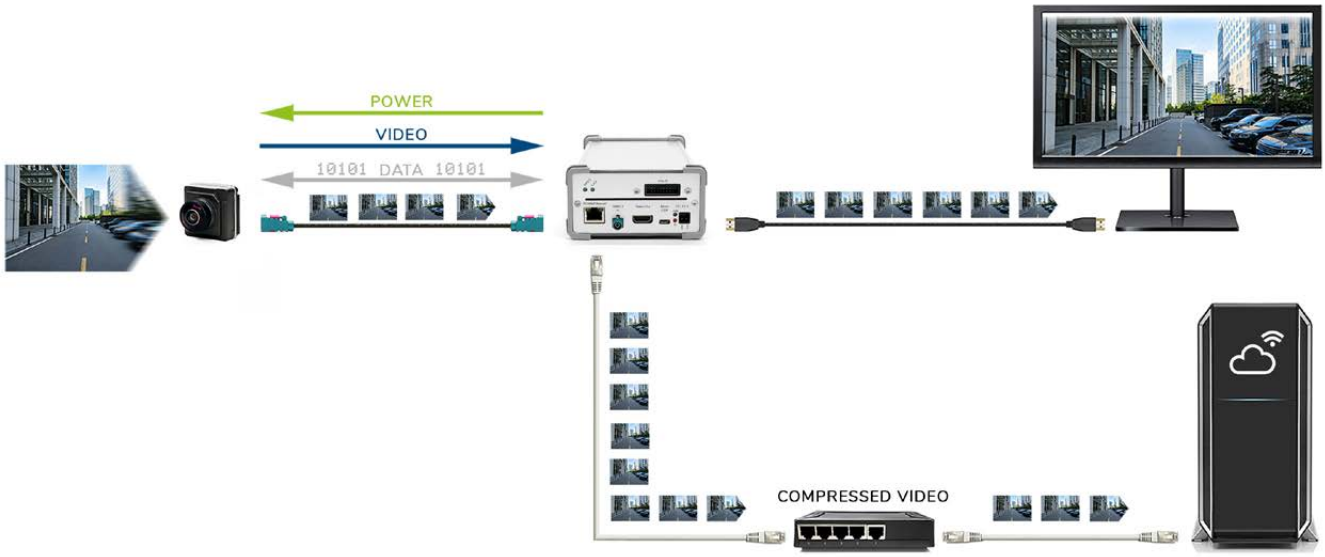
SIGNAL PROCESSING UNIT FOR AUTOMOTIVE VIDEO LINKS

Conversion of Automotive Video Links to digital consumer video world and ethernet

Document Version 1.001

The answer to your challenges is here

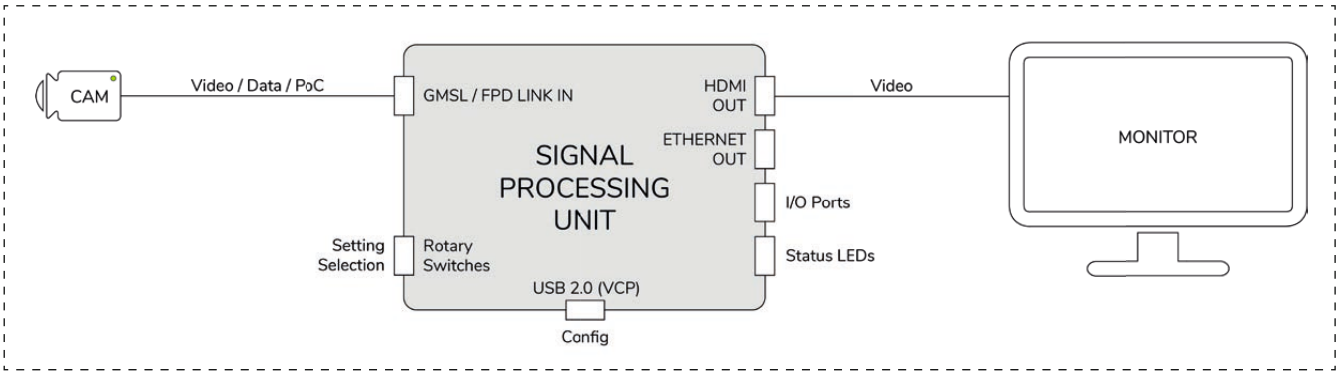
Conversion of Automotive Video Links to digital consumer video world and ethernet



Features

- Convert an Automotive Video Link source to a HDMI signal or Ethernet stream in less than 10 minutes setup time
- All-in carefree package: tools, cables and paramteres included
- Pre-configuration and Plug&Play support included
- Easy adaptable to new use-cases
- Applicable to Head-Unit , ECU and Camera validation, laboratory, rack and in-car testing, cloud based testing
- Wide variety of TZ add-on products

General Device Structure



Key Features

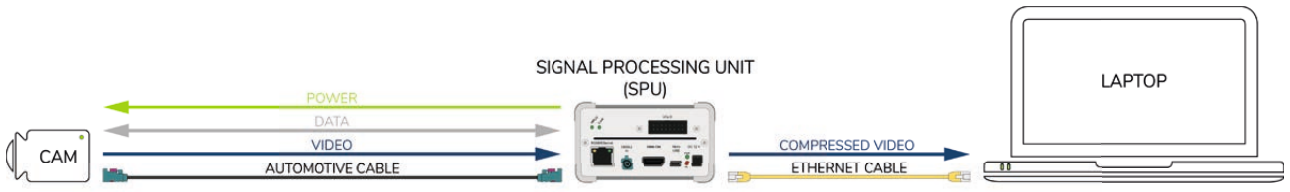
- Easy conversion of an Automotive Video Link to HDMI and/or compressed Ethernet stream (simultaneous output possible)
- Available for Maxim GMSL, GMSL2, TI FPD-Link III
- Conversion of YUV and Raw (including De-bayering) video signals to RGB24
- Virtual Channel filtering and selection
- Scaling, Framerate adaption and Warping (Head-Up Display application) possible
- Power over COAX supply (e.g. for cameras)
- Internal storage and playback of register tables for camera (serializer + imager) initialization
- Built-in control channel master for register access of the SerDes over USB (Virtual Com-Port)
- External access to deserializer pins like I2C, GPIO or UART for the usage with host adapters e.g. Aardvark
- Up to 80 pre-configured settings plus 20 user defined settings for different link settings, resolutions and color formats
- TZ GUI for simple and quick settings configuration
- Easy firmware updates

Typical Customer Applications

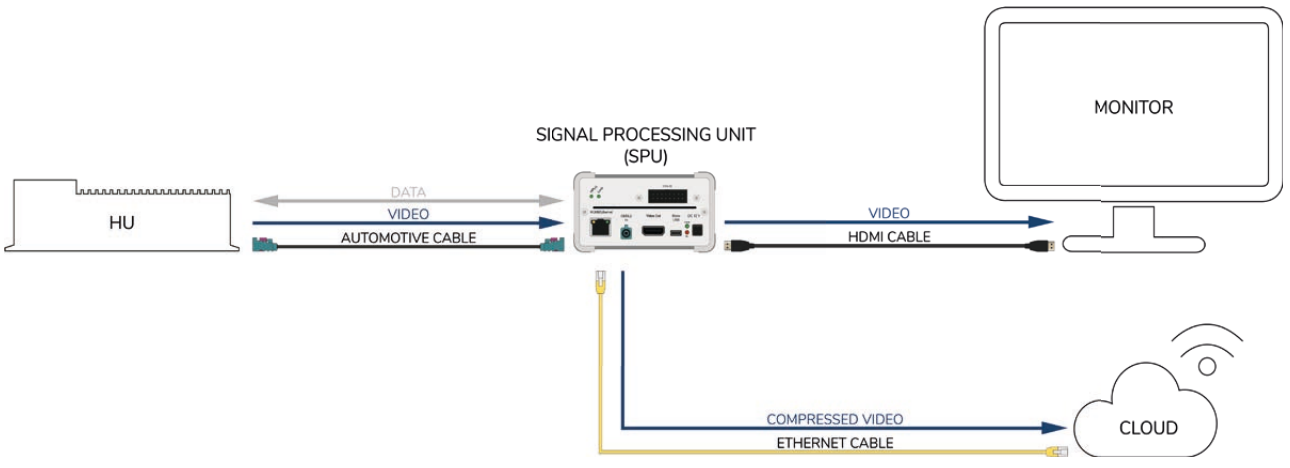
- Cloud based testing at remote test center
- Easy testing at users working desk
- In-Car recording of video signals in expiremental vehicles
- Calibration of camera lenses in laboratory environments
- Demonstration setups
- Hardware in the loop tests
- Environmental tests
- End of the line testing

Use Cases

Camera Recording

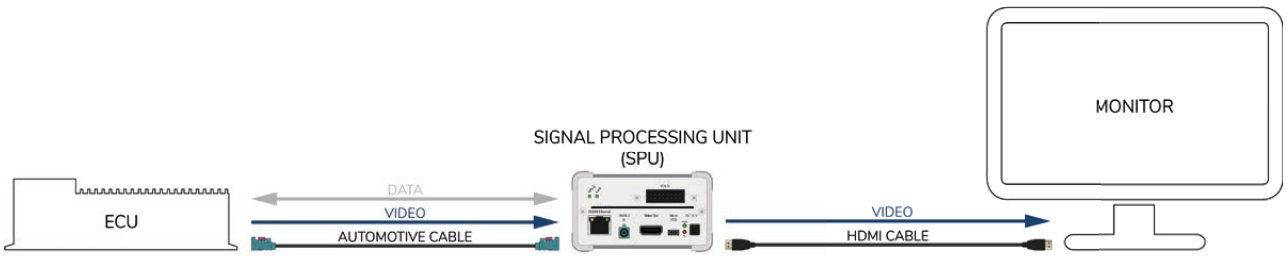


Cloud Based

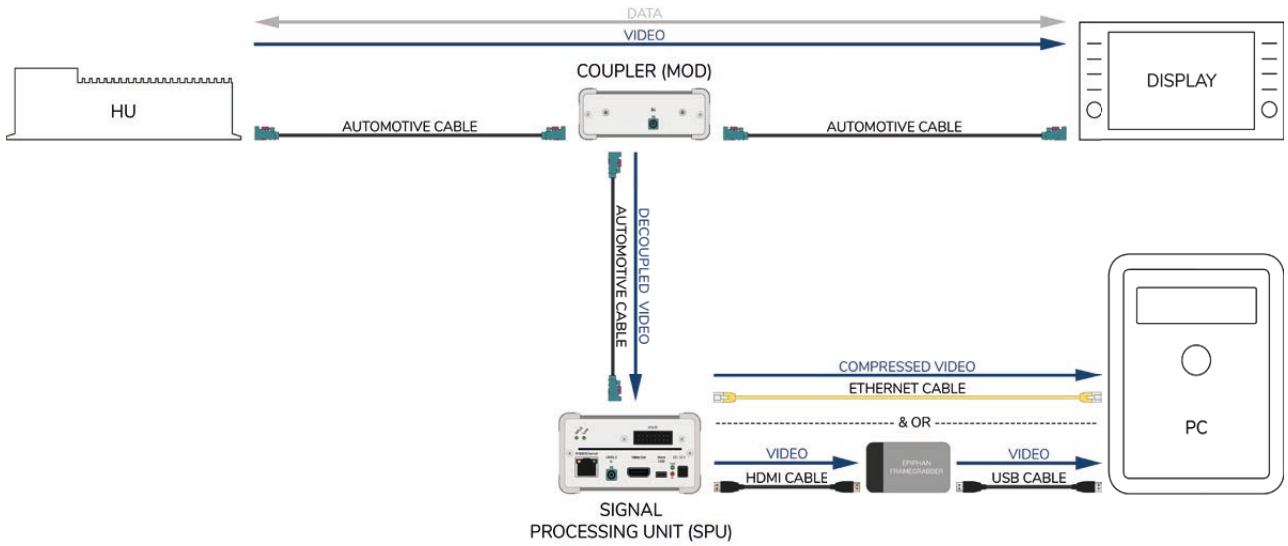


Use Cases

ECU Visualization



HU Validation & Recording



ECU Validation

Technical Data

PC interface (configuration)	USB 2.0 (VCP)
Power supply	+9 to 16V (DC)
Power consumption	Max. 45W
Temperature range	0°C...70°C

Signal Processing Unit Variations

Part No	Technology	Serializer	Deserializer	Input & Output Connector	Video Out Connector
SPU0020	GMSL	MAX9275	MAX9276	Rosenberger HSD	HDMI
SPU0030	GMSL	MAX9275	MAX9276	FAKRA	HDMI
SPU0060	GMSL2	---	MAX96784	FAKRA	HDMI 2.0
SPU0070 coming soon	FPD-LINK III	---	DS90UB960	FAKRA	HDMI 2.0
SPU0080	GMSL1 & 2	---	MAX9296	FAKRA	HDMI 2.0


SPU0030


SPU0060


SPU0080

Signal Processing Unit Features

Part No	Features
SPU0020	POI, CAN, TMDS
SPU0030	POI, CAN, TMDS
SPU0060	DES, I2C, DSC, RGMII
SPU0070 coming soon	I2C
SPU0080	DES, I2C

Maxim Integrated
Texas Instruments
HDMI
HDMI 2.0
Remote Control
Scalable output stream
Setting Switches
TZ GUI Support
External access to DES pins
I2C Passthrough
UART Passthrough
Power over Coax
Passthrough of Input
CAN Playback
TMDS over HDMI
DSC Coding
RGMII
Ethernet Streaming
Grey Symbols for not yet implemented features*

Suitable Add-on Products

Part No	Description
SW0010	1:8 Rosenberger HSD Switch
SW0030	2:1 Rosenberger HSD Switch (DUAL Link)
SW0060	8:1 Rosenberger HSD Switch
SW0080	2:1 FAKRA Switch
SW0090	8:1 FAKRA Switch
MOD0010	Rosenberger HSD to FAKRA Adapter
MOD0061	UART ot RS232/USB Adapter
MOD0200	I2C to USB-HID Adapter


SW0010


SW0060


SW0080


SW0090


MOD0061


MOD0200

Accessories

Part No	Description
AC1001	Epiphan DVI2USB3.0 Frame Grabber
AC1003	Epipahn AV.io 4k HDMI2USB3.0 Frame Grabber
AC1020	Datapath VisionSC-DP2 Dual DisplayPort video capture card PCIe x8
AC1008	Total Phase Aardvark I2C/SPI Host Adapter
AC1009	Total Phase Beagle I2C/SPI Protocol Analyzer
AC1004	Lilliput TM-1018/O/P - 10,1“ Studio Monitor
AC1005	Lilliput A12 4k 12,5“ Studio Monitor
AC2015	Universal Power Supply 12V/2A 2-pin Ria (EU,US,UK,AU)
AC3036	1,8m USB Cable (Type-A to Type-B plug)
AC3035	5,0m USB Cable (Type-A to Type-B plug)
AC3003	1,5m Leonie Dacar 302 cable with FAKRA connector (straight jack, z-coding)
AC3033	3,0m Leonie Dacar 302 cable with FAKRA connector (straight jack, z-coding)
AC3006	5,0m Leonie Dacar 302 cable with FAKRA connector (straight jack, z-coding)
AC3010	1,5m Leonie Dacar 535 cable with Rosenberger HSD connector (Straight jack, z-coding)
AC3012	3,0m Leonie Dacar 535 cable with Rosenberger HSD connector (Straight jack, z-coding)
AC3013	5,0m Leonie Dacar 535 cable with Rosenberger HSD connector (Straight jack, z-coding)
AC3014	7,5m Leonie Dacar 535 cable with Rosenberger HSD connector (Straight jack, z-coding)
AC3026	2,0m HDMI cable
	Further cable assemblies on request

Imprint
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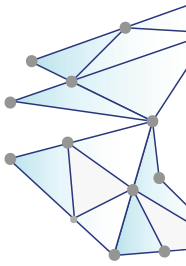
automotive video
innovations



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