

Shaping the Future: TSN Hardware & TSN Software

TSN Switch

- Overview
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Overview

Highly flexible AVB/TSN capable secure automotive switch intended for use in the lab, car or HIL



The Q50 Switch offers solid and predictable gPTP and AVB/TSN functionalities, including 1PPS output and a wide range of management capabilities. This provides easy access and configuration of the device via a custom switch editor for Windows with integrated automatic discovery.

Key Features

- 8-port Ethernet switch
- Wide range of 100/1000 Mb/s and BASE-T/T1 connectivity
- All ports are fully compliant to IEEE802.3 automotive standards
- Automotive gPTP support, including 1PPS output
- AVB (Qav shaping)
- MAC address blacklisting and whitelisting available on all ports

Features

The Q50 Automotive Ethernet Switch is flexible and highly optimized for precise and demanding applications in the lab, in HIL and in test vehicles.

- 5x IEEE 100BASE-T1 ports
- 2x IEEE 1000BASE-T1 ports
- 1x configurable port: 1000BASE-T1 or 1000BASE-T
- gPTP due to IEEE 802.1AS, fully configurable with editor
- Fully configurable independent port matrix with PTP filter and injector
- VLAN, fully configurable with editor
- Credit-based shaper (e.g. IEEE802.1Qav), fully configurable with editor
- Editable ATU, fully configurable with editor
- Onboard diagnostics (link status, data throughput, packet statistics)
- Instantaneous boot for in-vehicle usage
- Wide 12-42VDC input power range for use in practically any application
- 1PPS output via SMA, 50Ω
- Compact dimensions, robust metal chassis
- Wide range of LEDs and buttons for standalone control and feedback
- Underlying AUTOSAR OS
- AVNU Alliance Ethernet Functional Specification v1.4, certified
- PTP IEEE 802.1 AS, conformant to AutoCDS v.1.4
- Firmware update via Ethernet with editor, base firmware with USB



All parameters are fully configurable and storable via the custom switch editor for Windows.

Port Status

Port	Link Status	Link Role	FE In	FE Out	GE In	GE Out
1	Down	Slave	488	228	488	228
2	Down	Slave	488	228	488	228
3	Down	Slave	488	228	488	228
4	Down	Slave	488	228	488	228
5	Down	Slave	488	228	488	228
6	Down	Slave	488	228	488	228
7	Down	Slave	488	228	488	228
8	Down	Slave	488	228	488	228

PTP Settings

Port	PTP Role	1st Sync Interval	PTP Delay Req. Interval	Sync Interval
1	Master	100ms	1sec	100ms
2	Master	100ms	1sec	100ms
3	Master	100ms	1sec	100ms
4	Master	100ms	1sec	100ms
5	Master	100ms	1sec	100ms
6	Slave	100ms	1sec	100ms
7	Slave	100ms	1sec	100ms
8	Slave	100ms	1sec	100ms

VLAN Settings

VLAN	Port	Priority	Weight	Max. Rate	Min. Rate	Max. Burst	Min. Burst
1	1	1	1	1000	1000	1000	1000
2	2	1	1	1000	1000	1000	1000
3	3	1	1	1000	1000	1000	1000
4	4	1	1	1000	1000	1000	1000
5	5	1	1	1000	1000	1000	1000
6	6	1	1	1000	1000	1000	1000
7	7	1	1	1000	1000	1000	1000
8	8	1	1	1000	1000	1000	1000

ATU

Port	ATU	ATU	ATU	ATU	ATU	ATU	ATU
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0

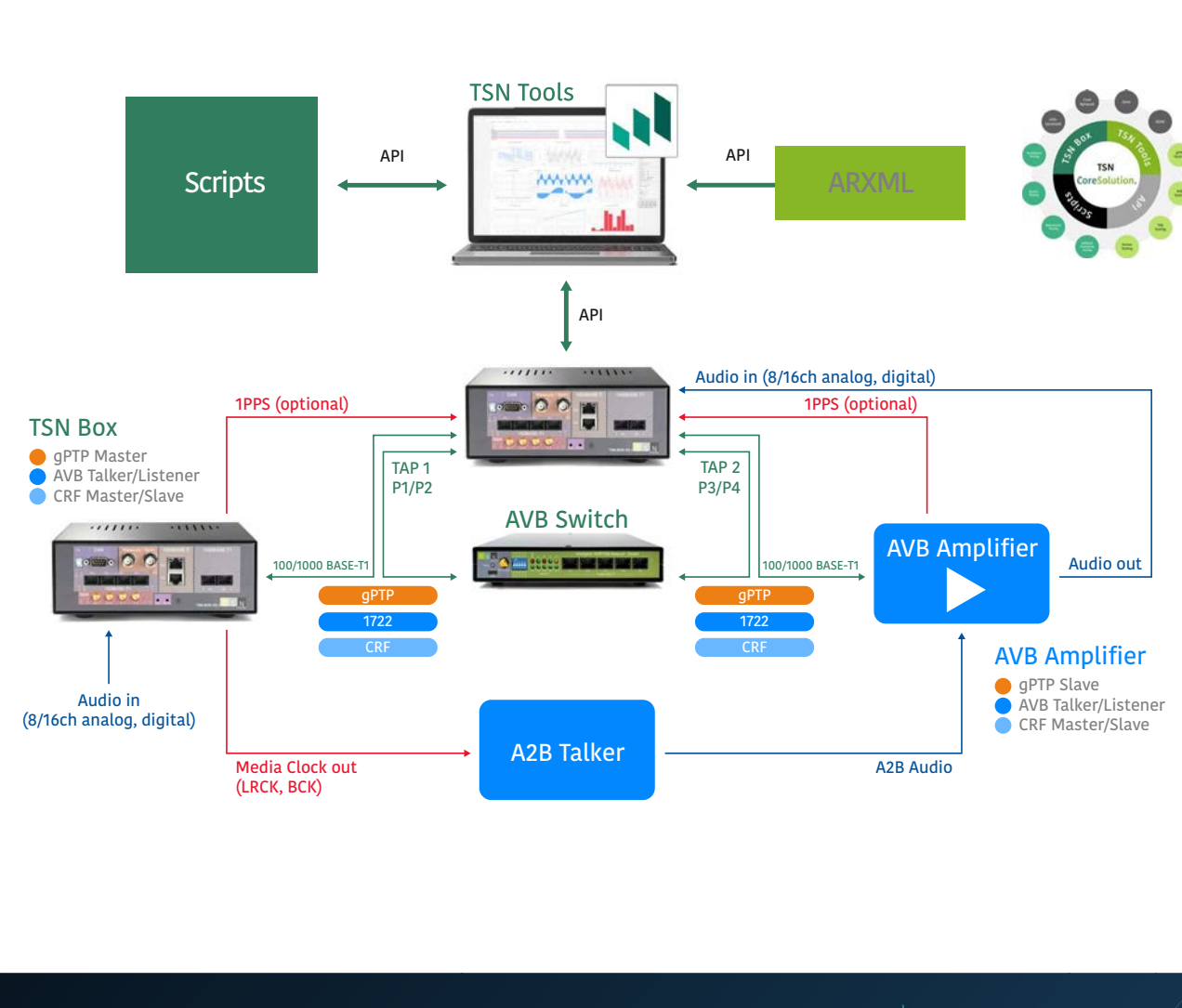
Port Matrix

Port	Egress P1	Egress P2	Egress P3	Egress P4	Egress P5	Egress P6	Egress P7	Egress P8
1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Use Case

Use Case AVB

The Q50 Switch can serve in many test scenarios in the lab to simulate in-ECU switches with gPTP and time-sensitive capabilities. A further typical application is providing stable gPTP grand master synchronisation in test vehicles.



Time Matters.

Get In Touch With Us



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