

# Shaping the Future: TSN Hardware & TSN Software

## TSN Switch

- Overview
- Features
- Use Case

## 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	128ms	1sec	128ms
2	Master	128ms	1sec	128ms
3	Master	128ms	1sec	128ms
4	Master	128ms	1sec	128ms
5	Master	128ms	1sec	128ms
6	Slave	128ms	1sec	128ms
7	Slave	128ms	1sec	128ms
8	Slave	128ms	1sec	128ms

## VLAN Settings

VLAN	Name	Priority	Port	Link Status
1	Default	1	1-8	Down
2	...	...	...	...

## ATU

Port	ATU	Link Status
1	Down	Down
2	Down	Down
3	Down	Down
4	Down	Down
5	Down	Down
6	Down	Down
7	Down	Down
8	Down	Down

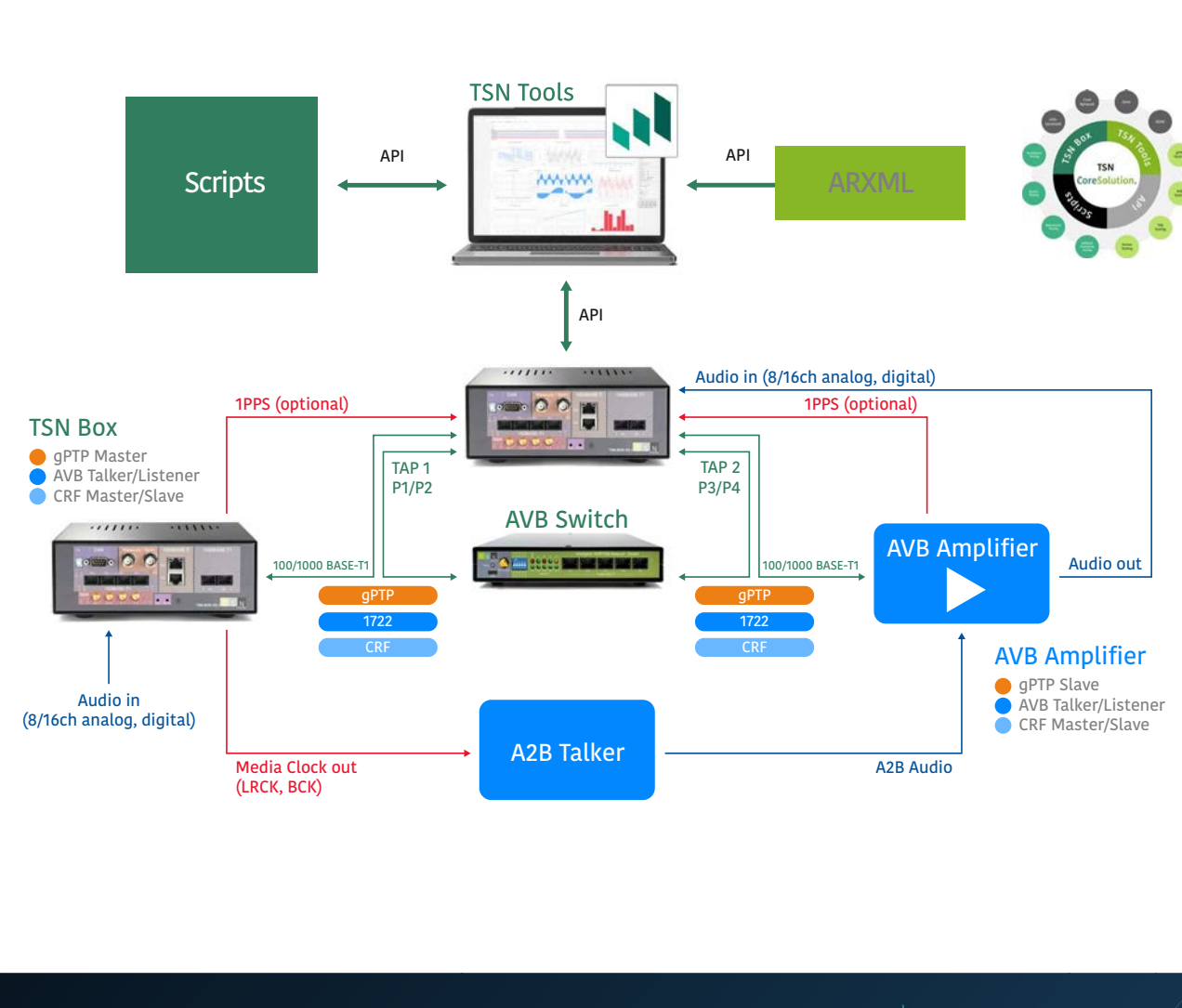
## Port Matrix

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