MOBATIME

SWISS TIME SYSTEMS

HIGH-PRECISION PTP SLAVE AND TIME BRIDGE

DTS 4020.TIMEBRIDGE

The DTS 4020 serves as a time bridge between a packet-based PTP network and legacy synchronization signals. With its serial Time of Day (ToD), 1 PPS, 10 MHz and IRIG-B output signals and its NTP capability, it offers an economical solution to synchronize existing equipment with a new backhaul network.

HIGHLIGHTS

PTP SLAVE

The DTS 4020 is a PTP slave according to IEEE 1588-2008 / PTPv2, with IEEE 1588-2019 / PTPv2.1 compability, for high-precision synchronization. Usable for telecom (e.g. LTE), energy (e.g. smart grid), automation etc.

LEGACY OUTPUTS

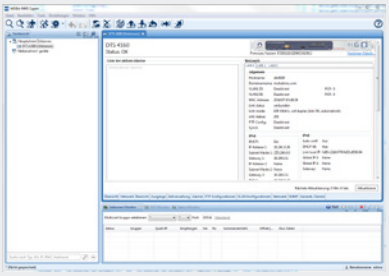
The DTS 4020 supports legacy outputs such as Time of Day (ToD), IRIG, pulse, and frequency.

HIGH-PRECISION TIME BRIDGE

With the provided legacy outputs, the DTS 4020 is a economical solution to synchronize existing installations with a new PTP-based backhaul network. The provided cross domain synchronization enables the parallel usage of existing systems and modern network based equipment.

HIGH-PERFORMANCE NTP SERVER

The DTS 4020 can reply to more than 10'000 NTP and SNTP requests per second (up to 600'000 clients depending on NTP client configuration).

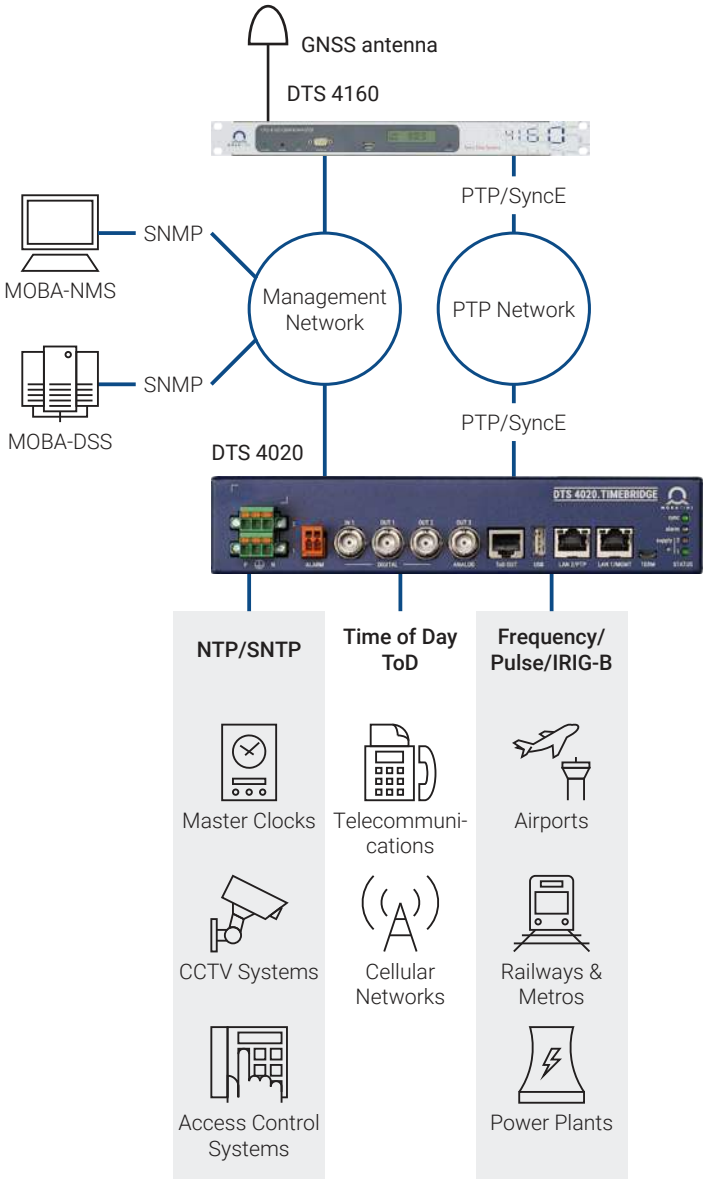


NETWORK MANAGEMENT SYSTEM

MOBA-NMS

The DTS 4020.timebridge can be fully monitored, configured and controlled using the Mobatime Network Management System software (MOBA-NMS). The optional Device Supervision Service (MOBA-DSS) allows for constant supervision of devices in the network.

APPLICATIONS



TECHNICAL DATA

MECHANICAL DATA AND ENVIRONMENT

General data

Dimensions:
W x H x D = 221 x 44 x 252 mm
w/ cap rail: H = 51 mm
w/ mounting bracket: W = 483 mm (19", 1U)
Weight: 2 kg
Housing material: Steel
Protection degree: IP 20
Operating temperature: 0–50 °C
Operating humidity: 10–90 % relative, no condensation
Power supply:
Supply 1: 24–60 VDC;
Options for supply 2: no supply; 24–60 VDC; 100–240 VAC; Power over Ethernet (redundant, monitored)

STANDARDS

Conformity

The DTS 4020.timebridge conforms to the following agency approvals[1]:

CE, CB, RoHS, WEEE
EMC: EN 61000-6-4, EN 61000-6-2
Safety: IEC 62368

[1] For full list, see product manual

REFERENCE SIGNAL INPUTS

- PTP slave (E2E, P2P, 1-step, 2-step, multicast, layer 2, IPv4/IPv6) (LAN 2)
- PTP profiles: default E2E/P2P; power utility (IEEE/IEC 61850-9-3); telecom ITU-T G.8265.1, G.8275.1, G.8275.2
- 1x SyncE (LAN 2)
- 1x frequency (1 PPS, 10 MHz)
- NTP (future option)

REFERENCE SIGNAL OUTPUTS - NETWORK

- NTP server (<10'000 requests/second on both ports combined)
- NTP mode: Server, Peer, Broadcast, Multicast / SNTP / MD5 and SHA1 authentication for NTP
- TIME (RFC 868), DAYTIME (RFC 867)

REFERENCE SIGNAL OUTPUTS - NON-NETWORK

- 1x IRIG-B/10 MHz, precision output (AM)
- 2x precision pulse/frequency/IRIG-B output (DC)
- 1x Time of Day (ToD) output

NETWORK INTERFACE

- 2x 100/1000BaseT

NETWORK FEATURES

- PTP slave / SyncE slave / NTP V4/V3 server (RFC 5905/1305) / SNTP (RFC 4330)
- IP configuration: IPv4 (DHCP, static IP), IPv6 (autoconfiguration, DHCPv6, static IP)
- VLAN: prioritized (IEEE 802.1p), tagged (IEEE 802.1Q)
- Static routing

ALARMS

- Electrical output: relay contact
- Network outputs (LAN 1 & 2): SNMP notifications (Traps) V2c, Mail (RFC 4954, 2195)
- Alarm LED

OSCILLATOR STABILITY

- Holdover (after 24h synchronization) at room temperature <+/- 1ms/day (<0.01ppm)

ACCURACY (TYPICAL VALUES)

- Internal
  - PTP to internal time: < +/- 100 ns
  - F-In to internal time: < +/- 200 ns (frequency only)
  - SyncE to internal time: < +/- 200 ns (frequency only)
- Time signal output
  - PTP to NTP: < +/- 100 µs
  - PTP to pulse: < +/- 100 ns
  - PTP to IRIG (AM): < +/- 200 µs
  - PTP to IRIG (DC): < +/- 200 ns
  - PTP to ToD: < +/- 100 ns

MANAGEMENT & SUPERVISION

- MOBA-NMS; monitoring possible with MOBA-DSS (included in MOBA-NMS EXPERT)
- Terminal menu: Micro USB, SSH, Telnet
- SNMP (v1/v2c/v3), SNMPv3 with authentication and encryption
- System firmware download via SCP, SFTP or FTP
- LEDs: Sync, Alarm, Supply 1, Supply 2

SECURITY

- Configuration and log files are stored on non-volatile memory in order to survive power failures
- See Mobatime security guideline (available on request)
- SNMPv3, SCP, SSH, NTP authentication

INTERFACES

1	**Power supply 1**	3-pin terminal	24–60 VDC
	Power supply 2 options[1]	- 3-pin terminal 3-pin terminal RJ45	no power supply 24–60 VDC 90–240 VAC Power over Ethernet
2	**Alarm contact**	2-pin terminal	Normally closed Max. load: 30 W (30 VDC or 1 A) / 60 VA (60 VAC or 1 A)
3	**In 1 - Digital**	BNC (female), 50 Ω	Pulse/frequency
	Out 1 - Digital	BNC (female), 50 Ω	IRIG digital/pulse/frequency
	Out 2 - Digital	BNC (female), 50 Ω	IRIG digital/pulse/frequency
	Out 3 - Analog	BNC (female), 50 Ω	10 MHz/IRIG analog
4	**ToD output**	RJ45 100/1000MBit	RS-422 (1 PPS)
5	**USB**	USB host for USB sticks	For firmware updates and log files
6	**LAN 1/MGMT**	RJ45 100/1000MBit	Maintenance/NTP
	LAN 2/PTP	RJ45 100/1000MBit	Maintenance/NTP/PTP
7	**Terminal**	Micro USB	RS-232 interface for local management
8	**Status LEDs**	Synchronization (green), alarm (red), power supply 1/2 (green)	

[1] Redundant, monitored

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Do you have any questions?
We are happy to help.

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MOBATIME

Product specifications are subject to change without notice.