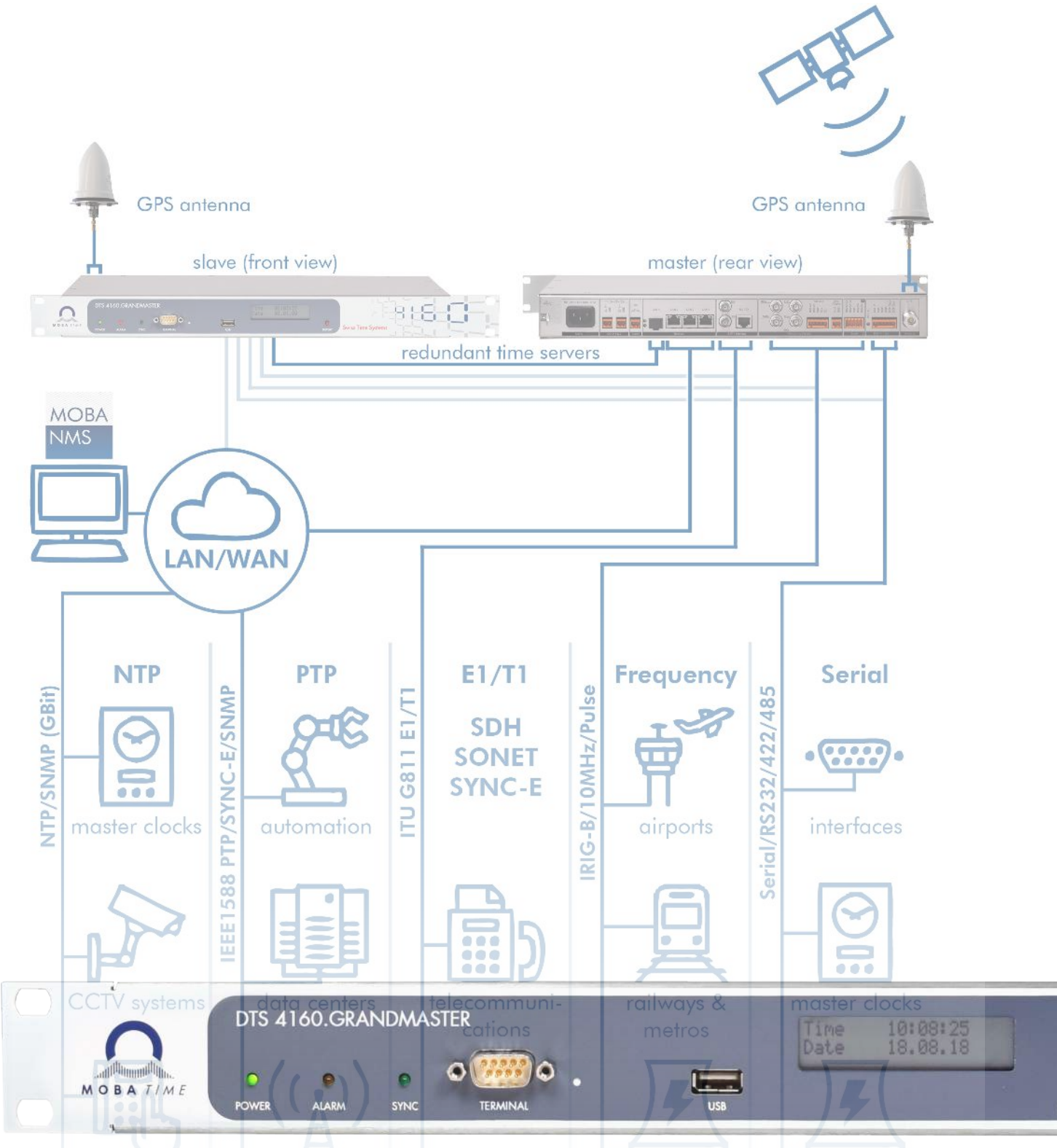
OVERVIEW

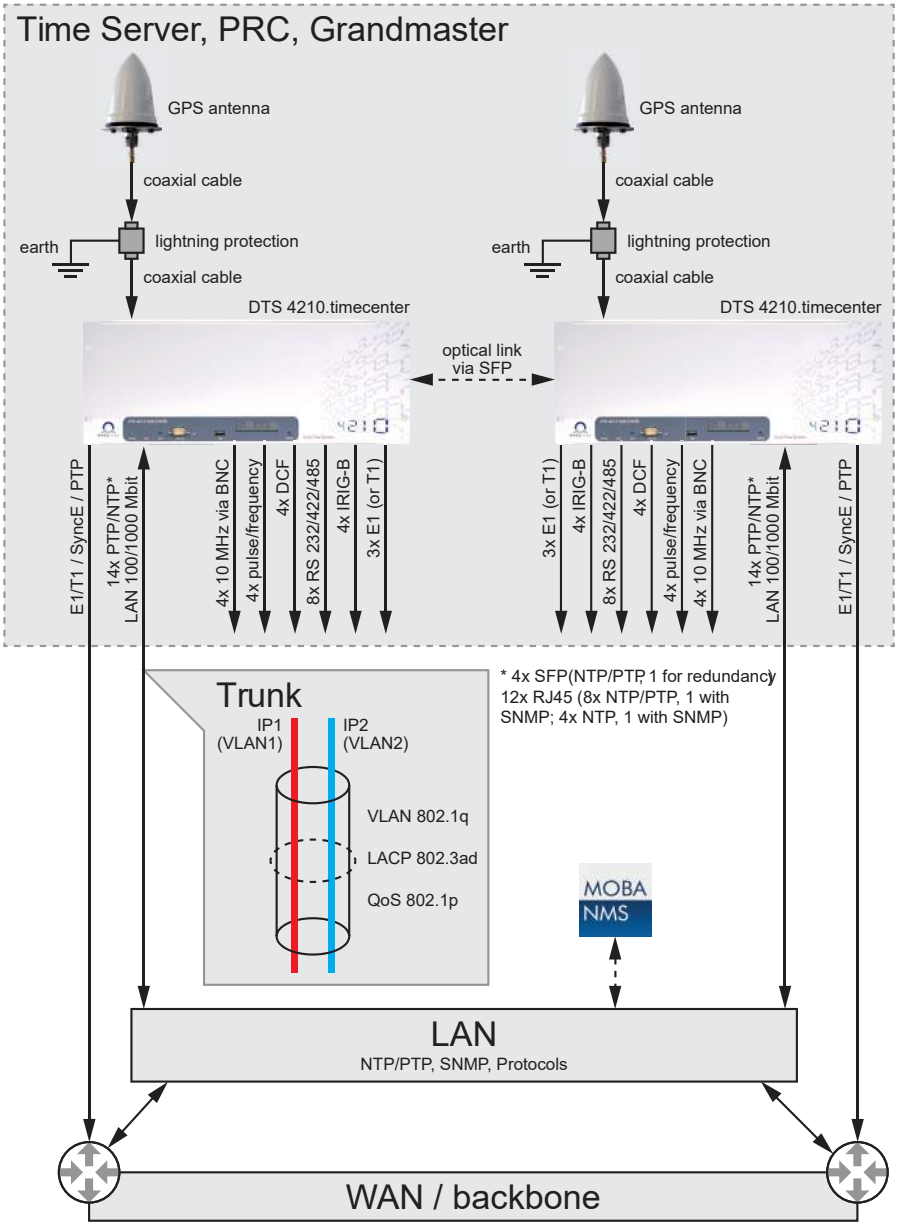
NETWORK TIME SERVERS



HIGH PRECISION GRANDMASTER, PRC AND NTP TIME SERVER

DTS 4210.timecenter

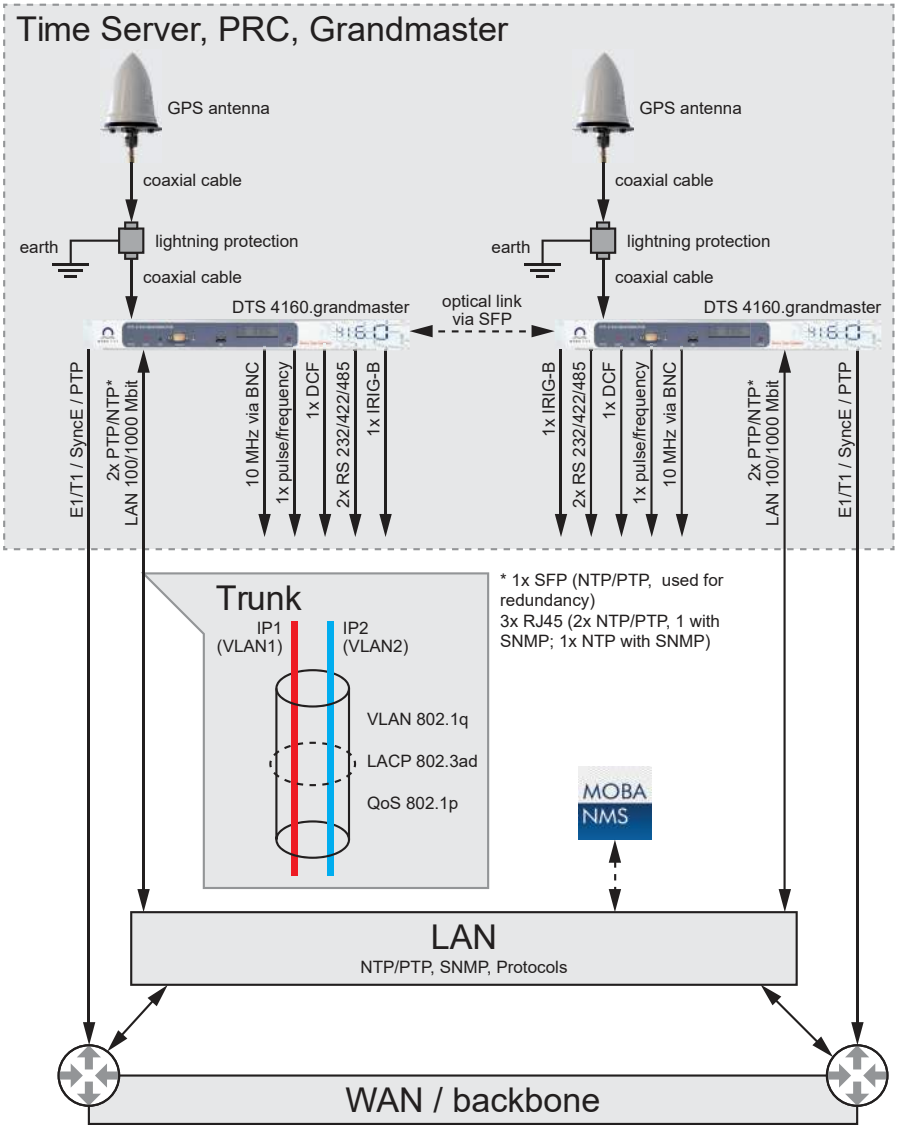
Versatile, highly accurate Time Center: Redundant and reliable Network Time Server, PRC and Grandmaster for multiple networks, e.g. ports, ATC, airports, railways OCC, power plants...



HIGH PRECISION NTP TIME SERVER, GRANDMASTER AND PRC

DTS 4160.grandmaster

Highly accurate, redundant, and reliable Network Time Server, PRC and Grandmaster for multiple networks, e.g. ports, ATC, airports, railways OCC, power plants...



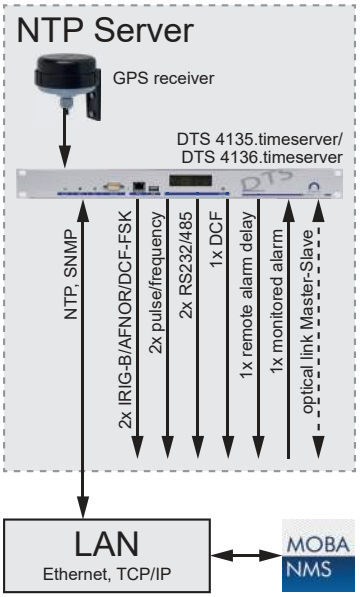
MOBATIME

SWISS TIME SYSTEMS

NTP TIME SERVER FOR TECHNICAL APPLICATIONS

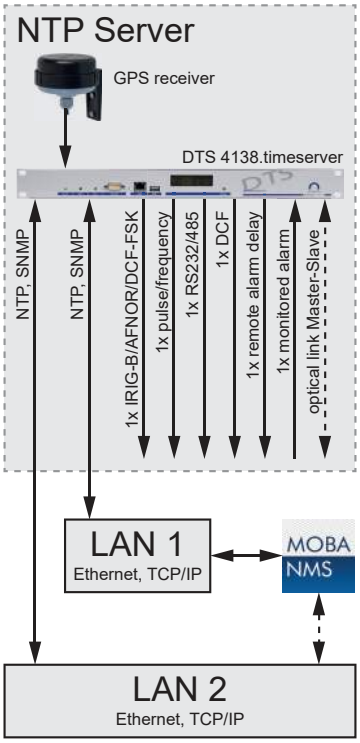
DTS 4135.timeserver
DTS 4136.timeserver

High precision time server for technical applications, e.g. power stations, OCCs, hospitals...



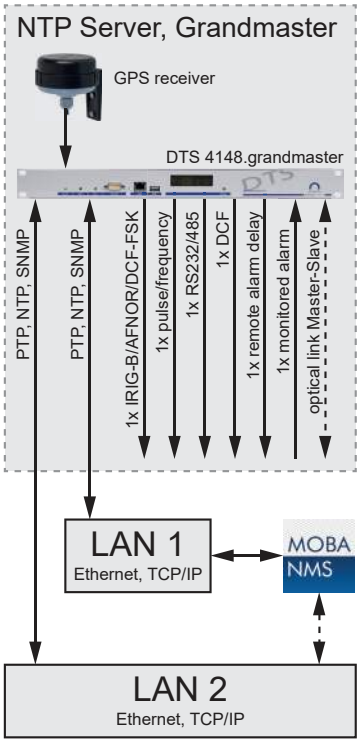
DTS 4138.timeserver

High precision time server for technical applications where devices in two isolated networks need to be synchronized, e.g. power stations, OCCs, IT applications...



DTS 4148.grandmaster

High precision time server and grandmaster for technical applications where devices in two isolated networks need to be synchronized, e.g. power stations, OCCs, IT applications...



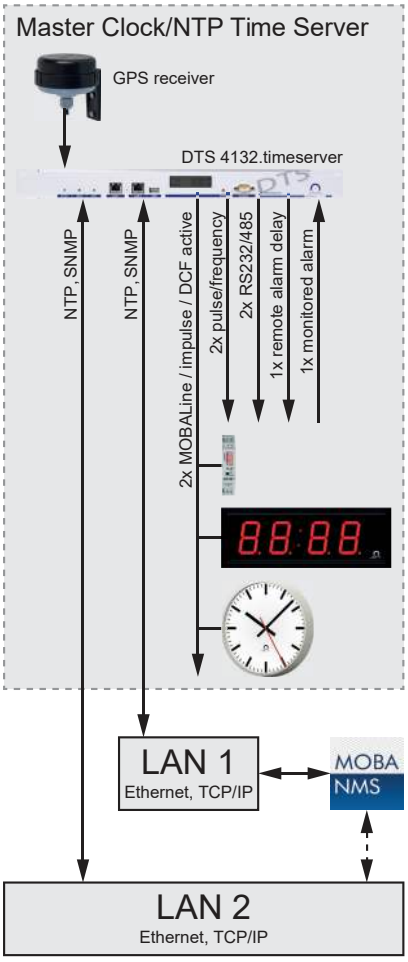
MOBATIME

SWISS TIME SYSTEMS

NTP TIME SERVER AND NETWORK MASTER CLOCKS

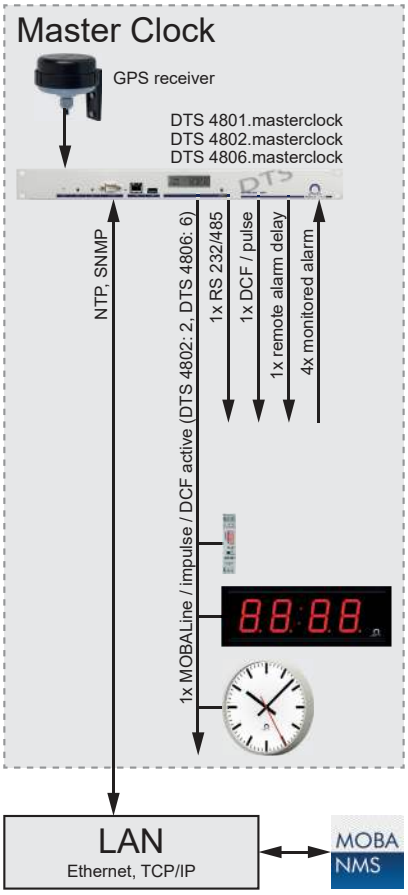
DTS 4132.timeserver

High precision network master clock and time server for applications where devices in two isolated networks need to be synchronized, e.g. for banks, industries, schools, railway stations, universities...



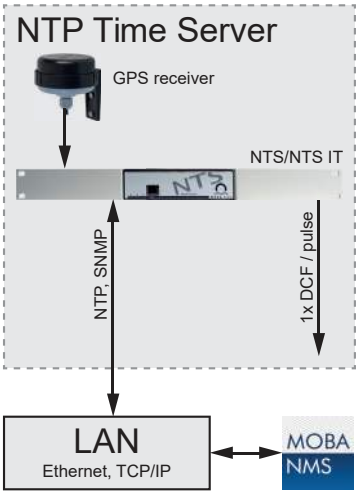
DTS 4801.masterclock
DTS 4802.masterclock
DTS 4806.masterclock

Accurate network master clock and time server, e.g. for banks, industries, schools, railway stations, universities...



NTS
NTS IT

Accurate time server for IT applications, e.g. for banks, industries, airports, OCCs, universities...



MOBATIME

SWISS TIME SYSTEMS

OVERVIEW: THE RANGE OF GRANDMASTER, PRC & TIME SERVERS

Overview table

On the top of the table you will find the most sophisticated and accurate network devices equipped with Rubidium oscillators. These network devices are providing, out of the traditional NTP, IRIG-B, RS422-232, PPS protocols, the up-to-date PTP, SyncE and E1/T1 protocols for synchronization of large Gigabit Ethernet and SDH/SONET networks.

Grandmaster PRC/PRTC				
Rubidium	Oscillator type:	Output types:	Protocols:	Product types:
	- Rubidium	- Ethernet 1Gb/ PTP/NTP/SyncE - IRIG-B - ITU G811/AINSI, E1/T1 - Serial interfaces	- PTP, IEEE1588 - NTP - SyncE - IRIG-B/AFNOR - E1/T1 (G811/AINSI) - RS232/422/485 - TTL pulses - DCF	DTS 4210 DTS 4160

Eco-Grandmaster				
OCXO	Oscillator type:	Output types:	Protocols:	Product types:
	- OCXO	- Ethernet/NTP/PTP - IRIG-B - Serial interfaces	- PTP, IEEE1588 - NTP - IRIG-B/AFNOR - RS232/422/485 - TTL pulses - DCF	DTS 4148

Timeserver				
OCXO TCXO	Oscillator types:	Output types:	Protocols:	Product types:
	- OCXO - TCXO	- Ethernet/NTP - IRIG-B - Serial interfaces - Clock lines	- NTP - IRIG-B/AFNOR - RS232/422/485 - MOBALine - Polarized impulses - DCF	DTS 4132 DTS 4135 DTS 4136 DTS 4138

Eco-Timeserver				
XO	Oscillator type:	Output type:	Protocols:	Product types:
	- XO	- Ethernet/NTP	- NTP - DCF	NTS NTS IT

Master clock				
XO	Oscillator type:	Output types:	Protocols:	Product types:
	- XO	- Ethernet/NTP - IRIG-B - Serial interfaces - Clock lines	- NTP - IRIG-B/AFNOR - RS232/422/485 - MOBALine - Polarized impulses - DCF	DTS 4801 DTS 4802 DTS 4806 DTS 4132 (TCXO)

MOBATIME

SWISS TIME SYSTEMS

TECHNICAL DATA

General	DTS 4801.masterclock DTS 4802.masterclock DTS 4806.masterclock	NTS NTS IT	DTS 4132.timeserver	DTS 4135.timeserver DTS 4136.timeserver	DTS 4138.timeserver DTS 4148.grandmaster	DTS 4160.grandmaster	DTS 4210.timecenter
Housing (19")	1U	1U (w/ brackets)	1U	1U	1U	1U	4U
Redundant power supply (mains/DC or DC/DC)	dual PS		✓	✓	✓	✓	✓
Mains	85..265VAC	100..240VAC	90..240VAC	90..240VAC		90..240VAC	2x 90..240VAC
DC	22..29VDC 4806: 22..70VDC	22..29VDC	2x 22..29VDC	2x 22..29VDC	2x 22..29VDC	2x 22..29VDC	2x 22..29VDC
External time source							
NTP / SNTP servers; GPS 4500, GNSS 3000	✓	✓	✓	✓	✓		
PTP, E1, GPS Antenna (1590 MHz)						✓	✓
IRIG-B				✓	✓		
GBIC-Link for redundant operation, master-slave negotiation			✓	✓	✓	✓	✓
Time signal outputs							
IRIG-B, AFNOR, DCF-FSK	4801: option (built in IF 488)			2 precison outputs, 50 Ω	1 precison output, 50 Ω	1 precison output, 50Ω	4 precison outputs, 50Ω
NTP slave clocks + time zone server	1		1	1	1	1	1
PTP Grandmaster (E2E, P2P, 1-step, 2-step, Unicast, Multicast, Layer 2)					DTS 4148: only 2-step, no unicast	✓	✓
Serial outputs with configurable time telegrams: RS 232/422/485 (RS422: output only)	1 (4802: RS232 only)		2	2	1	2	8
E1/2.048MHz, G.811, G.812, G.813 according oscillator option, no protected output (1:1), no SSM, BNC						1	4
DCF current loop (CL) passive output	1 (+ pulse)	1	1	1	1	1	4
Precision pulse/frequency/DCF output on RS422 and CL			1	2	1	1	4
10 MHz (BNC connector)						1	4
MOBALine, DCF active or polarized Impulses (Impulse line)	4801: 1 4802: 2 4806: 6		2				
Network interface							
SFP for miniGBIC module 100/1000Base-T(X) or FX						1	4
10BaseT / 100BaseTX	1	1	2	1	2		
100BaseTX / 1000BaseT						3	12
Network services							
NTP server, max. (S)NTP client requests per s (typical)	250	250	1500	1250	4138: 250 4148: 1500	10000 / device	5000 / port
NTP client (configurable timeserves)	4	4	4	4	4	future option	
NTP V4 (V3 compatible); NTP modes: Server, Peer, Broadcast, Multicast; NTP MD5 authentication; SNTP	✓	✓	✓	✓	✓	✓	✓
PTP 1588-2008 Grandmaster					4148 only	✓	✓
SyncE						✓	✓
TIME, DAYTIME; Telnet, SSH, FTP - disengageable; SNMP Notifications (V1/V2c); SNMP Get, Put (V1/V2c/V3)	✓	✓	✓	✓	✓	✓	✓
IP V6 support	✓	✓	✓	✓	✓	✓	✓
IP configuration							
DHCP; static IP	✓		✓	✓	✓	✓	✓
LAG; VLAN, QOS						✓	✓
Accuracy (typical values)							
GPS* to NTP Server	<+/-0.5ms	<+/-0.5ms	<+/-0.1ms	<+/-0.1ms	<+/-0.1ms	<+/-0.1ms	<+/-0.1ms
GPS* to PTP					4148: <+/-0.01ms	<+/-250ns	<+/-250ns
GPS* to DCF output	<+/-1ms	<+/-1ms	<+/-0.01ms	<+/-0.01ms	<+/-0.01ms	<+/-0.005ms	<+/-0.005ms
GPS* to Pulse / frequency output	<+/-1ms		<+/-0.01ms	<+/-0.01ms	<+/-0.01ms	current loop output: <+/-0.005ms BNC output: <+/-250ns	current loop output: <+/-0.005ms BNC output: <+/-250ns
GPS* to IRIG (modulated)	<+/-15ms[1]			<0.2ms	<0.2ms	<0.2ms	<0.2ms
GPS* to IRIG (digital)				<0.01ms	<0.01ms	<0.001ms	<0.001ms
GPS* to serial output	<+/-10ms		<+/-10ms	<+/-10ms	<+/-10ms	<+/-10ms[1]	<+/-10ms
Master to slave (redundant operation)			<+/-0.001ms	<+/-0.001ms	<+/-0.001ms	<+/-250ns	<+/-250ns
Quartz Oscillator	standard	standard	TCXO	4135: TCXO 4136: OCXO	4138: TCXO 4148: OCXO	OCXO/Rubidium (Option)	Rubidium
Hold over (after >24h synchronisation) @ 20°C+/- 5°C	<+/-100ms/d	<+/-100ms/d	< +/-10ms/d	4135: <+/-10ms/d 4136: <+/-1ms/d	4138: <+/-10ms/d 4148: <+/-1ms/d	Option A: 1*10-8 Option B: 1*10-10 Option C: 3*10-11	3*10-11
Operation control							
MOBA-NMS	✓	✓	✓	✓	✓	✓	✓
Telnet	✓	✓	✓	✓	✓	✓	✓
SSH	✓	✓	✓	✓	✓	✓	✓
RS 232 (PC-Terminal)	✓	✓	✓	✓		✓	✓
SNMP (V2c/V3 Get, Put)	✓	✓	✓	✓	✓	✓	✓
LED for alarm, synch, power	✓	✓	✓	✓	✓	✓	✓
USB for update	✓	✓	✓	✓	✓	✓	✓
Alarm output							
Relais contact	✓		✓	✓	✓	✓	✓
SNMP Notifications	V1/V2c	V1/V2c	V1/V2c	V1/V2c	V1/V2c	V1/V2c	V1/V2c
E-Mail	✓	✓	✓	✓	✓	✓	✓
Alarm input							
control inputs	4		1	1	1		

[1]option