PARTNERSHIP

To deliver high precision solution, Bodet has signed a partnership with Spectracom, a world leading company in high precision timing solutions for communications equipment and networks
http://www.spectracom.com

PRESENTATION

Sigma OXO combines precision master clock technology and secure network approach with a compact modular hardware design to bring a powerful high precision time reference system:

- Internal high precision time keeping via TCXO quartz or OCXO quartz oscillator.
- Multiple, prioritised input time references.
- Modular design supporting a wide variety of input/output signals (with up to 6 input/output modules).
- Secure network management: enable or disable protocols for encryption, authentication, authorisation and accounting.
- Alarms notifications via SNMP Traps and e-mail.

DIAGRAM

- —— PPS / 10 MHz
- —— Ethernet
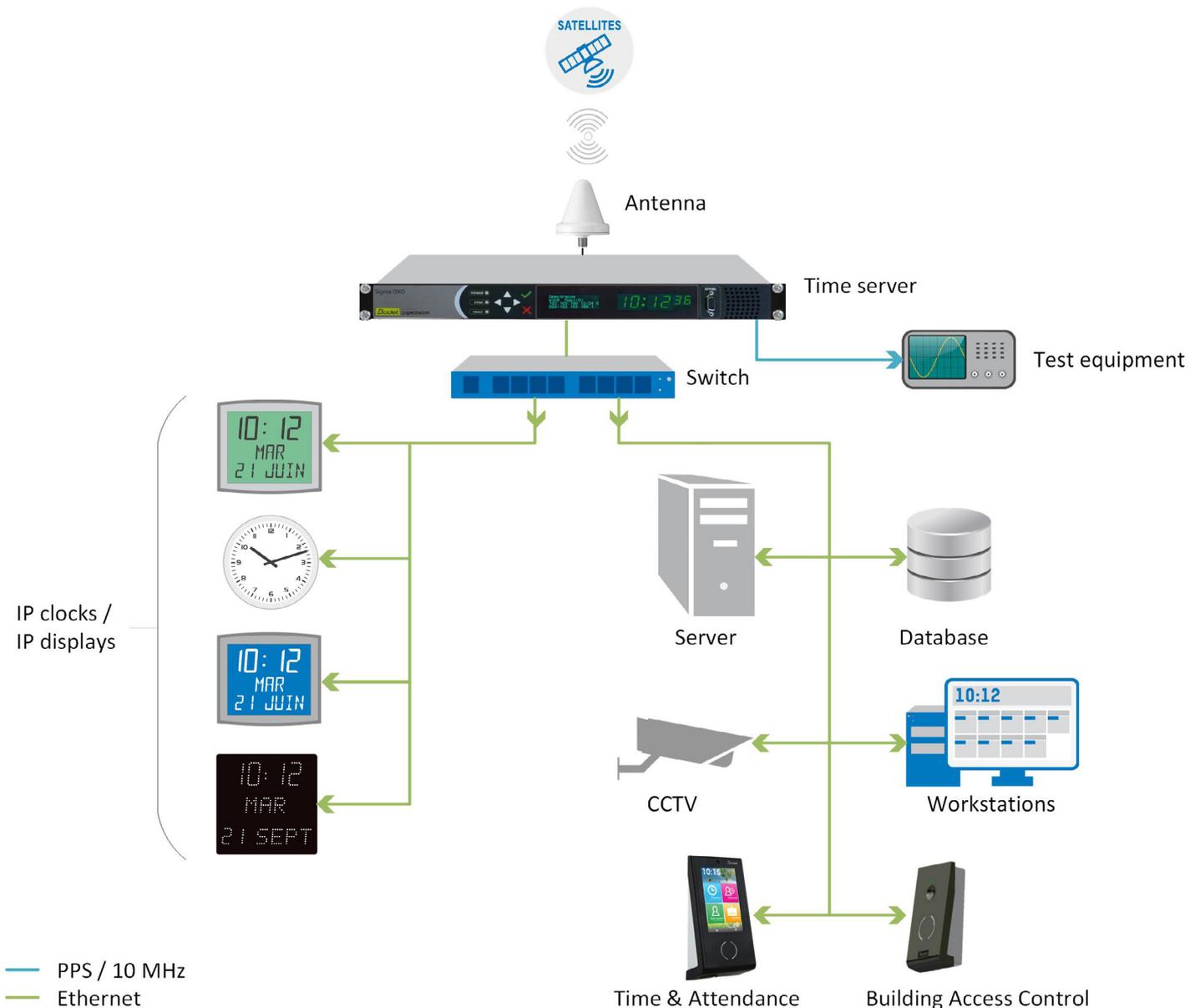
MODELS

	SIGMA OXO TCXO QUARTZ VERSION	SIGMA OXO OCXO QUARTZ VERSION
Accuracy (average over 24 hours when GPS locked).......................	$1x10^{-11}$	$2x10^{-12}$
Medium Term Stability (without GPS after 2 weeks of GPS lock).......	$1x10^{-8}$/day	$5x10^{-10}$/day
Temperature stability (peak to peak)..	$1x10^6$	$5x10^9$
Input...	1x GPS	
Output...	1xEthernet, 1xPPS - 1x10MHz frequency, 6 slots for option cards	
PPS output: accuracy to UTC (Sigma locked to GPS).......................	50 ns	±25 ns
Holdover (constant temp after 2 weeks of GPS lock).....................	After 4 hours: 12 μs After 24 hours: 450 μs	After 4 hours: 0.5 μs After 24 hours: 10 μs
Alarm..	Via SNMP Traps and e-mail.	

MECHANICAL FEATURES

Construction..	Shockproof metal casing for 19'' - 1u rack
Operating temperature range...	-20°C to +65°C
Protection index..	IP41
Weight...	2.72 kg
Dimensions..	364 x 364 x 44 mm

ELECTRICAL FEATURES

Power supply...	100-240 VAC, 50/60 Hz ±10% with ventilation

COMMUNICATIONS

Network port..	RJ45, 10/100-baseT
Serial Set-up Interface..	RS232 communications on DB-9 connector
Front panel..	LED segments displays time Lockable keypad and configurable LCD display for network set-up

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NETWORK SERVICES

TIMING

NTP V2, V3, V4...	Conforms with or exceeds RFC 1305 and 5905. Support Unicast, broadcast, Multicast, MD5 encryption, Peering, Stratum 2 and Autokey
SNTP V3, V4...	Conforms with or exceeds RFC 1769, 2030, 4330 and 5905

MANAGEMENT

IPv4/IPv6..	Dual stack
DHCPv4/DHCPv6 (AUTOCONF)/SLAAC.............................	Automatic IP address assignment
LDAP...	Authentification
RADIUS...	Authentification
Syslog...	Logging
SNMP...	Supports v1, v2, v2c and v3 (no auth/auth/priv) with enterprise MIB

COMMUNICATIONS

HTTP/HTTPS...	Borwser-based configuration and monitoring
Telnet/SSH...	Remote configuration
FTP Server...	Access to file (logs, etc.)
SMTP...	E-mail

SECURITY FEATURES

- Enable/Block Protocols
- Password Protected
- Encryption DES, 3DES, AES
- Authentication SHA1, MD5
- SSL Web-based Interface: SSL is used to secure HTTPS protocol to access configuration and status web pages.
- SSH: SSL and data compression technologies provide a secure and efficient means to control, communicate with, and transfer data to or from the time server remotely.
- SCP: securely transfers files to and from the time server over an SSH session.
- SFTP: FTP replacement operates over an encrypted SSH transport
- SNMP: remotely configure and manage over an encrypted connection.

REFERENCES

• **907081**...	Sigma OXO - TCXO - 240 VAC
• **907083**...	Sigma OXO - TCXO - 240 VAC & 24-48 VDC
• **907082**...	Sigma OXO - OCXO - 240 VAC
• **907084**...	Sigma OXO - OCXO - 240 VAC & 24-48 VDC

OPTIONS CARDS

Card description	Limit number of cards per Sigma OXO
• 3x Gigabit NTP outputs....................................	1
• 1x PTP output...	6
• 1x IRIG input + 2x IRIG ouputs...........................	6
• 4x IRIG outputs...	6
• 3x Alarm dry contact relay................................	1
• 1x ASCII input + 1x ASCII output.........................	6

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SATELLITE ANTENNA

Environment........................	Outdoor GPS / GNSS antenna
Weight..............................	140 grs
Operating temperature..........	-40°C to +85°C
Dimensions........................	66.5 x 47.5 mm
Protection index..................	IP67

Ø 66.5 mm

47.5 mm
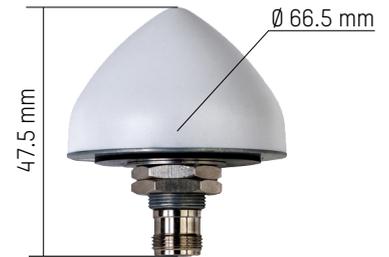
OPTION MODULE CARDS

1PPS		
	Input	Output
Quantity.................................	1 PPS input 1 Frequency input	1 PPS output
Signal type and connector......	TTL (BNC)	TTL or 10V (BNC), or RS485 (terminal block) 50 Ohms
Maximum number of cards.......	6	

ALARM CONTACT OUTPUTS	
	Alarms
Quantity.................................	3 contacts
Signal type and connector....	NO/NC relays (terminal block)
Maximum number of cards....	1

IRIG		
	Input/Output	
Quantity.................................	1 Input 2 Outputs	0 input 4 Outputs
Signal type and connector......	Amplitude modulation (0.5 to 6V peak-to-peak into 50 Ohms) or DC level shift (unmodulated), user selectable, on BNC	
Formats*..............................	IRIG A, B, E, G, NASA 36	
Accuracy...............................	± 2-200 μs (format dependent)	
Maximum number of cards.......	6	

ASCII TIME CODE	
	Input/Output
Quantity.................................	1 Input 1 Output
Signal type and connector....	RS232 on DB9 RS485 on terminal block
Formats*..............................	ICD-GPS-153C: 253, 5040, 5101 (SINCGARS); NMEA: GGA, RMC, ZDA; Broadcast formats
Accuracy...............................	± 100-1000 μsec (format dependent)
Maximum number of cards....	6

PRECISION TIME PROTOCOL (PTP)	
Mode..........................	Ordinary clock, automatic master or slave selection, 1 or 2 steps operation
Time resolution......................	± 4 ns packet time-stamping
Accuracy...............................	30 ns master to slave via crossover cable
Master capacity......................	Sync. rate above 512 sync/sec
Network................................	IPv4, IPv6, multicast
Connector.............................	10/100 Mb Ethernet, RJ45: 1 port per card
Maximum number of cards.......	6
Standard...............................	IEEE-1588 V2

GIGABIT ETHERNET NTP	
Quantity.................................	3 ports NTP
Signal type and connector....	RJ45
Management.........................	Enabled or disabled (NTP server only)
Maximum number of cards....	1

*contact factory for details

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