

OVERVIEW

xPlover® is Digitex Systems' rugged and powerful central acquisition unit, designed for permanent installation in Structural Health Monitoring (SHM) projects. It integrates hardware and software in one compact device, combining industrial-grade reliability with the full functionality of the Voyager® software suite for data collection, storage, synchronisation, processing, alarming, and reporting.

With its robust aluminum IP67 enclosure, integrated UPS battery, and advanced time synchronization modules, xPlover ensures uninterrupted operation and precise alignment of data across large monitoring networks. Whether deployed on bridges, dams, tunnels, pipelines, or high-rise buildings, xPlover is the backbone of SHM installations, enabling real-time decision-making and long-term performance insights.

DESCRIPTION

xPlover acts as the central hub for all Sentry System devices (xWave, xSense, xStrain, etc.), supporting both local and remote configurations. It acquires and manages data from hundreds of channels simultaneously, with continuous Ring Buffer recording that ensures no event is missed. Data can be stored locally for up to 60 days and exported in proprietary compressed formats, MiniSEED, or ASCII for interoperability.

Equipped with dual Ethernet ports, DigiMESH® connectivity, and USB service access, xPlover provides flexible integration options. One Ethernet port supports the sensor network, while the second offers optional LAN/Internet connectivity. Users may publish their xPlover securely online through Digitex's tunneling service with predefined domains. Remote management is supported with over-the-air firmware updates, secure reboot, and configuration.

xPlover includes a GPS module and Digitex's proprietary DigiSync® protocol, ensuring sub-millisecond accuracy in time and data synchronization across all connected devices – critical for advanced modal and vibration analysis. Even in GPS-denied environments, DigiSync maintains reliable synchronization, aligning every sensor with the central station clock.

Users can access data directly through a web browser, preview and analyze recordings, generate automated PDF reports, or stream live data to client applications. Optional alarming features include SMS and email notifications, relay outputs, and integration with third-party safety systems. The integrated UPS battery provides more than 20 hours of autonomy, ensuring continuous operation during power outages.



KEY FEATURES

- **Permanent Installation:** Industrial-grade device designed for permanent SHM deployments in harsh environments.
- **Voyager® Software Integration:** Comes pre-installed with Voyager, providing full data acquisition, management, triggering, analysis, and reporting.
- **Robust Enclosure:** Rugged aluminum housing with IP67 protection against dust, humidity, and extreme weather conditions.
- **Advanced Time Synchronization:** GPS module with 1PPS accuracy $\pm 15\text{ns}$ and DigiSync® protocol for sub-millisecond alignment of all sensors.
- **Ring Buffer Storage:** Local SSD storage with up to 60 days of continuous recording, ensuring no data loss.
- **Multi-Format Support:** Data stored and exported in proprietary Digitex format, MiniSEED, and ASCII for maximum interoperability.
- **Flexible Connectivity:** Dual Ethernet ports, DigiMESH®, USB service port, FTP/SeedLink publishing options.
- **Alarming & Notifications:** Optional relay outputs, SMS/email notifications, and integration with external alarm systems.
- **Power Autonomy:** Integrated UPS battery with more than 20 hours autonomy; operates on 110/220VAC input.
- **Remote Management:** OTA firmware updates, device reboot, configuration management, and logging via secure interface.
- **User-Friendly Access:** Data accessible from any standard web browser with automated report generation (PDF, FFT, PSD, statistics).
- **LED Indicators:** Status LEDs for Power, Battery, and Sync for quick field diagnostics.
- **Low Power Consumption:** Efficient design with low power consumption, suitable for remote sites.

APPLICATIONS

- Bridges – long-term vibration and modal monitoring
- Dams and hydropower plants – seismic and structural event detection
- High-rise buildings – response to wind and seismic loading
- Tunnels and pipelines – centralized acquisition for distributed sensor networks
- Industrial plants and mines – safety monitoring and vibration analysis

SPECIFICATIONS

Function

Type: Central recording & processing unit (central station) for permanent SHM installations; integrates rugged hardware with full Voyager® software suite for real-time acquisition, storage, synchronization, alarming, and reporting.

Supported units: All members of xDAS Sentry system family

Synchronization

Time Base: GPS-disciplined timing and DigiSync® network synchronization for distributed arrays, utilizing proprietary hardware for precise time alignment across all connected devices.

Accuracy: Sub-microsecond for timing precision across distributed networks.

Interface

Connectivity: Dual Ethernet (10/100 Base-T) interfaces — one dedicated to the sensor network array with static IP, and the other operating in DHCP mode for external access.

LED interface: Indicators for AC power status, synchronization state, and battery level.

USB: Service port for maintenance and configuration purposes only.

On/Off: Illuminated power button for system activation and status indication.

GPS: SMA connector for external GPS antenna connection.

AC Input: Rugged metal-housing connector with IP67 protection and screw-lock coupling

Power

Supply Voltage: 110–220 VAC input

Power Consumption: ~15 W (average)

Backup: Integrated 12 V SLA battery providing up to ~20 hours of autonomous operation.

Protection: Short circuit, Overload, Over Voltage

Physical

Dimensions: 250 × 380 × 120 mm (9.84 × 14.96 × 4.72 in)

Weight: 7 kg (with battery included)

Enclosure: Rugged coated aluminum housing, IP65 rated (indoor use recommended)

Mounting: Horizontal or vertical using mounting plate (not supplied)

Environmental

Operating Temp.: -20 °C to +40 °C

Humidity: 0 – 90 % RH (non-condensing)

Certification

Standards: CE, RoHS, ISO9001, ISO14001

Software Updates

Software: Updated by Digitex Support team through secure internal procedure.

BENEFITS

- Provides centralized SHM data acquisition with integrated Voyager® software for a complete, ready-to-use solution
- Saves time and cost with dual Ethernet and DigiMESH® for flexible connectivity in any environment
- Increases system reliability with continuous Ring Buffer storage and Store&Forward® capabilities
- Enhances data integrity with GPS/DigiSync® sub-millisecond synchronization across all connected sensors
- Improves safety with optional alarming via SMS, email, and relay outputs, integrated directly into structural monitoring workflows
- Ensures uninterrupted operation with a rugged IP67 enclosure, low power design, and built-in UPS battery for >20h autonomy
- Simplifies management with web-based access, automated PDF reporting, and full remote control (OTA updates, reboot, configuration)
- Guarantees long-term field performance in harsh environmental conditions, from extreme weather to industrial settings