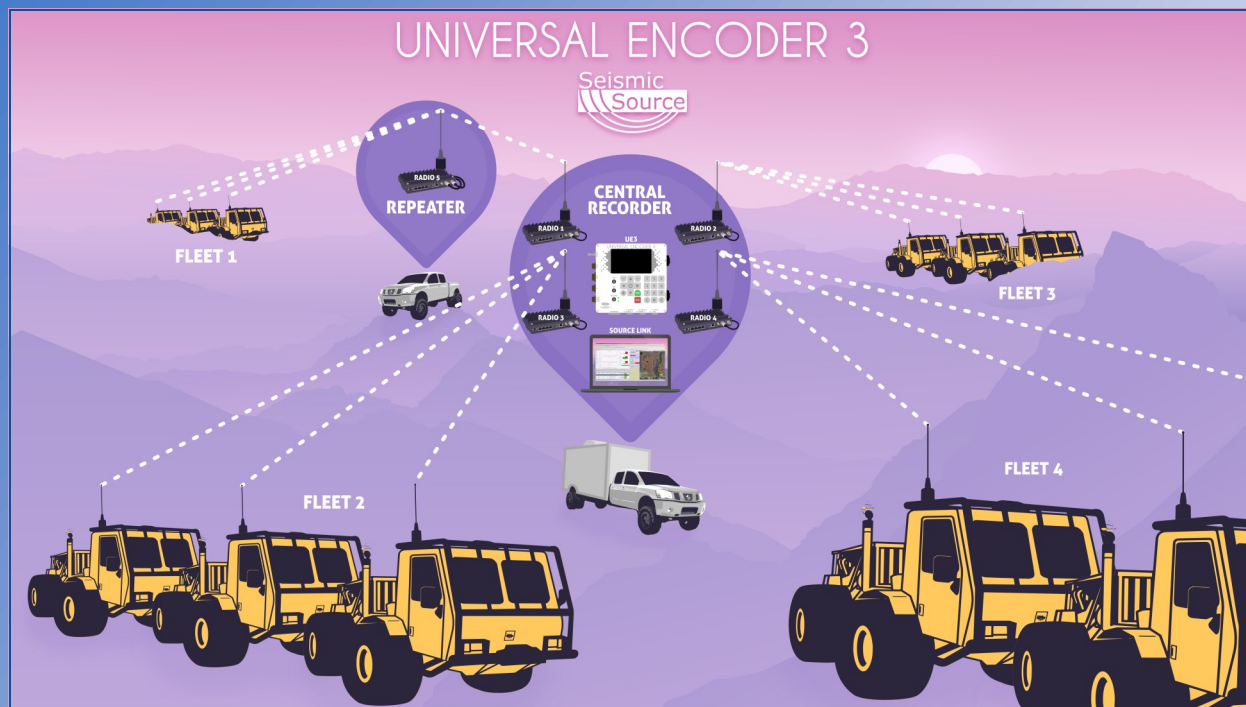


Source Control System



Ultra-High Production Acquisition



Ultra-High Production Vibroseis

Ultra-High Production Vibroseis (**UHPV**) means:

- More sweeps per shift
- Better data per sweep
- More vibrators per crew
- Better communications with fleets of vibrators
- Better data quality control
- More robust acquisition
- Better production reports and information tracking
- Crews equipped with **UHPV** technology have eclipsed 50,000 shots per each 24-hour day.

UHPV requires: SourceLink 3 software; one or more Universal Encoder 3 units; and vibrators equipped with Force 3 controllers.

SourceLink 3, UE3 and More

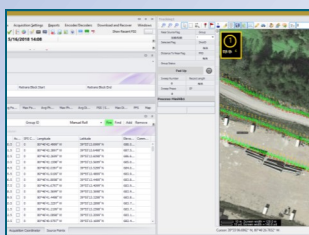
SourceLink 3, the **Universal Encoder 3**, and the **Force 3** Vibrator controller form the **UHPV** system; to increase the overall quality and quantity of data.

SourceLink 3 has a simplified QC interface and an intuitive COG display for improved operation of multiple fleets of vibrators.

Universal Encoder 3 interfaces between the **SL3** and the **Force 3** units to improve communications.

Force 3 decoder controls the vibrator and stores timebreaks and accelerometer signals when unit is out of radio communication range.

This system can include both the **Boom Box 3** for explosives and the **Remote Trigger Module 3** for mechanical impulsive sources.



SourceLink 3 Software



Ultra-High Production Vibroseis

Ultra-High Production Vibroseis (UHPV) means more vibrators doing more sweeps per shift than ever before. The **UHPV** technique requires new and improved hardware and efficient software to accommodate these new production levels.

SourceLink 3 Software together with the **UE3** is a breakthrough in technology that allows the **UHPV** technique to be implemented.

Acquire Data Fast

UHPV demands met by:

- Simplified QC interface
- Intuitive COG displays
- Improved operations of large fleets
- UE3 group cluster support

SourceLink 3 features:

- PSS view time domain
- Last X PSS for a given unit
- PSS overview for all vibrators and fleets
- Source Coordinator
- Groups "at a glance"
- COG targeting

Acquire Data Efficiently

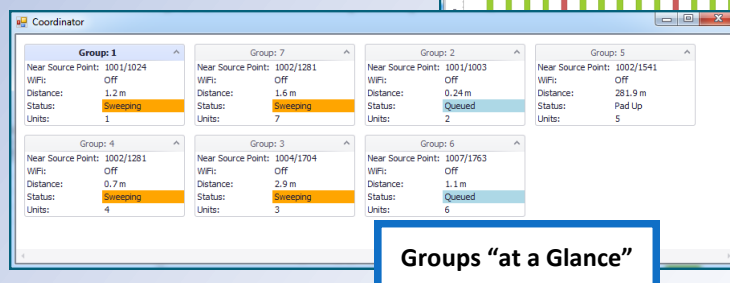
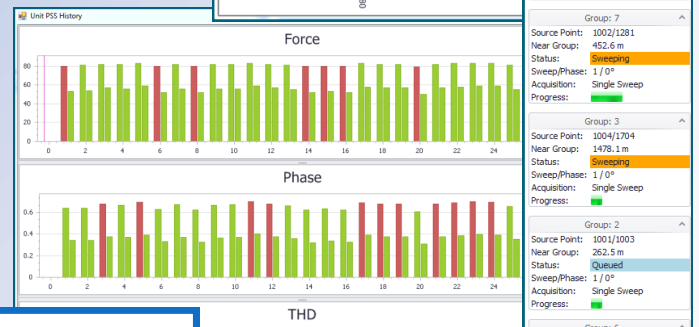
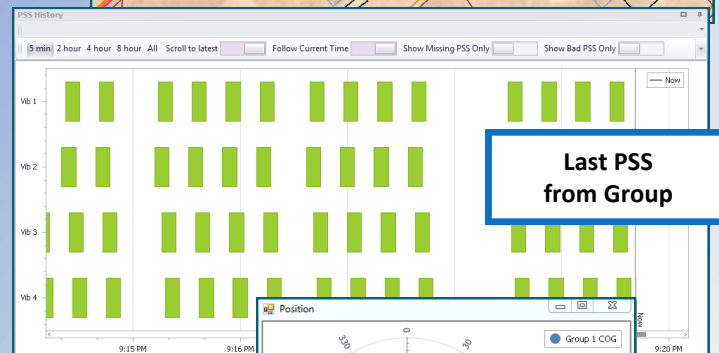
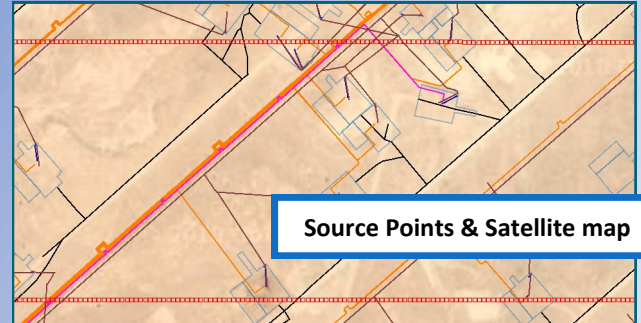
SourceLink 3 Software:

- Complete crew control and management
- Connects to the encoder
- Easy switch between source types
- Includes queuing for maximum efficiency
- Provides source locations for accuracy
- Processes PSS and PFS messages for quality control
- Generates End-Of-Day and End-Of-Project reports for confidence

A Complete System

Everything Required for Acquisition:

- SourceLink 3 Acquisition Management Software
- Universal Encoder 3
- Force 3 Vibrator Controller
- Plus the other SSC Decoders



Universal Encoder 3 - UE3



Ultra-High Production Vibroseis



UE3 Features

- **Compatibility** – UE3 is 100% compatible with the Force 3 system. Boards can be used as spares for the Force 3 system
- **Reference Flexibility** - Multiple Digital and Analog References
- **GPS Discipline** - GPS timing and assures starts on even sample boundaries for all continuous recording systems
- **Multiple Radio Support** - UE3 can connect simultaneously to 4 High Speed TDMA radios. These multiple high speed radios assure reliable and efficient communication to all of the vibrator units used in High Production Vibroseis Mode.
- **Digital Radio Support** - UE3 supports the latest Digital Radios
- **Analog Radio Support** - UE3 also supports legacy analog radios
- **Ethernet Radios Support** - The UE3 includes support for low-power VHF-Ethernet radios. These radios have good speed and work well in many applications
- **Digital Radio Sims** - Digital Radio Similarities are now available for UE3 and Force 3 or VibPro HD vibrator controllers
- **External USB Port** - Use USB thumb drive to offload data from remotely operated UE3 units.

Universal Encoder 3 Specifications

Features

| | |
|-----------------------------|--|
| Timing | GPS Disciplined |
| Sweep Resolution..... | 24 bit |
| Internal Network..... | 100 Mbit Ethernet |
| Internal Memory | 8 Gbytes (expandable) |
| Acquisition Techniques..... | Conventional Slip-Sweep (Shell) HFVS (ExxonMobil) ZenSeis (ConocoPhillips) Variable Slip with Distance Interleaved (Flip-Flop) Starts ISSS |
| Compatibility..... | Cabled and Nodal Systems |
| Autonomous Support..... | Yes |
| GPS..... | Dedicated Port |
| RTCM | Dedicated Port |

Source Numbers

| | |
|--------------------------|-----------------------------|
| Radio Serial Ports | 4 |
| Radios per UE3 | 4 |
| Fleets per Radio | 4 (16 fleets total per UE3) |
| UE3 units per crew | unlimited |

Radio Options

| | |
|----------------------------|-------------------------------|
| Supported Radio Types..... | Analog, Digital, and Ethernet |
| 50 watt VHF Digital..... | 15+ miles @ 4800 baud OTA |
| 5 watt VHF IP..... | 10+ miles @ 9600 baud OTA |
| 5 watt 900Mhz IP..... | 10+ mile @ 1Mbps OTA |

Source Start Protocol Options

| | |
|------------------------|----------|
| Crew Number Range..... | 1 to 250 |
| Start Code Range | 0 to 255 |
| Unit ID Range..... | 1 to 64 |
| Sims Range | 1 to 63 |

Physical

| | |
|-------------------|---|
| Size | 11¼ x 9½ x 2¼ inches - 286 x 242 x 57 mm |
| Weight | 5.9 lbs - 2.7 kg |
| Power Input | 10 to 30 volts DC |
| Power Draw..... | 0.2 amps |



Source Control Equipment



Compatible with all SSC source electronics:

The UE3 is compatible with all the acquisition electronics from Seismic Source and iSeis. It is optimized to the Force 3 Vibrator Controller (F3), Boom Box 3 (BB3) and the Remote Trigger Module 3 (RTM3).

The UE3 is also compatible with most recording systems, both conventional and autonomous. Along with SourceLink 3 (SL3) software the UE3 brings advance operation to older INOVA, ARAM and Sercel recorders. A UE3/SL3 system is essential for all nodal recording systems.

The UE3 is compatible with the Universal Encoder 2 (UE2).



**Universal
Encoder 3**

All Decoders Feature:

- External GPS for accurate system timing
- Three 32-bit (24 bits stored) data channels
- All shot information stored internally
- Supports Source Driven operation
- Internal memory for Autonomous operation
- Legacy Mode supports all standard crews

F3 Features:

- Fully compatible with all servo-hydraulic vibrators
- Compatible with most mechanical vibrators
- Generate maximum force with minimum distortion
- Automatic Vibrator Calibration
- Wi-Fi support for source group communications
- Automated Center of Gravity (COG) calculations
- Wireless digital similarities



Force 3

Boom Box 3 Features:

- Most popular blaster for seismic exploration
- 1 μ Sec accuracy (GPS mode)
- 400 volt firing voltage
- Wi-Fi supports phone, tablet and computer browser access
- Clip-on battery available for a compact, light-weight system



**Autonomous
Boom Box 3**

RTM3 Features:

- Fully compatible with sources large and small
- Triggers from hammer switch or geophone
- ± 1 μ Sec accuracy (GPS mode)
- ± 20 μ Sec accuracy (radio)
- Wi-Fi supports phone, tablet and computer browser access
- Clip-on battery available for a compact, light-weight system



**Remote Trigger
Module 3**

