

Continuous Monitoring

Using Tescia

1. Applications of Continuous Vibration/Noise Monitoring
2. Requirements and Challenges
3. Example: Ground Vibration Monitoring
4. Tescia Demonstration

Applications of Continuous Vibration/Noise Monitoring

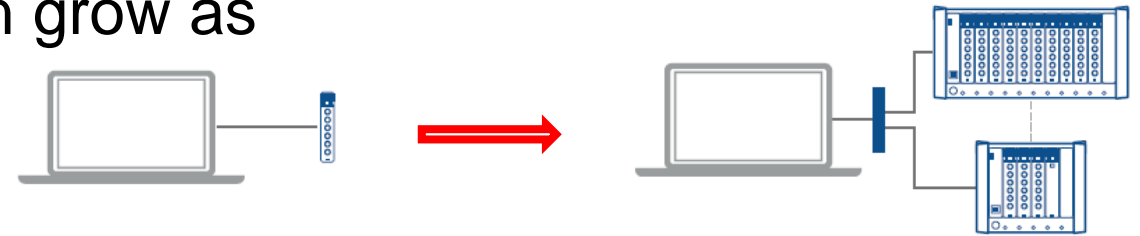
- ▲ Microelectronics, Optics, Metrology
- ▲ Semiconductors
- ▲ Laboratories

- ▲ Close to construction/transportation



- ▲ Scalable system/large channel count
- ▲ Distance between measurement points
 - Distributed System
- ▲ Accuracy and Reliability
- ▲ Notifications and Data Distribution
- ▲ Data Storage, Management

- ▲ Scalability: Start with a few locations, then grow as operations/needs expand



- ▲ Traditional Systems: Central architecture

- Long transducer cables
- Analog data transmission, Noise Induced
- Expensive and difficult to replace



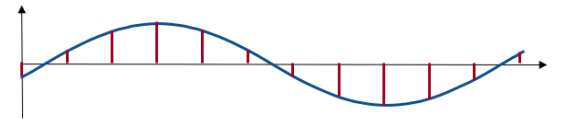
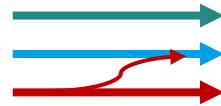
- ▲ Distributed Systems: Acquisition modules are situated close to the measurement object

- Ethernet cables
- Digitized signal, low noise
- Easy to replace/modify



Accuracy

- Sensors:
 - Sensitivity, Frequency Response, Stability (temperature, drift, etc.)
 - Noise floor, Cable effects, mounting
- Acquisition:
 - Dynamic Range: Ambient to Event
 - Sample Rate
 - Cross-talk issues
- Analysis:
 - Noise and Vibration are Dynamic Signals,
 - Need to be processed in Real Time

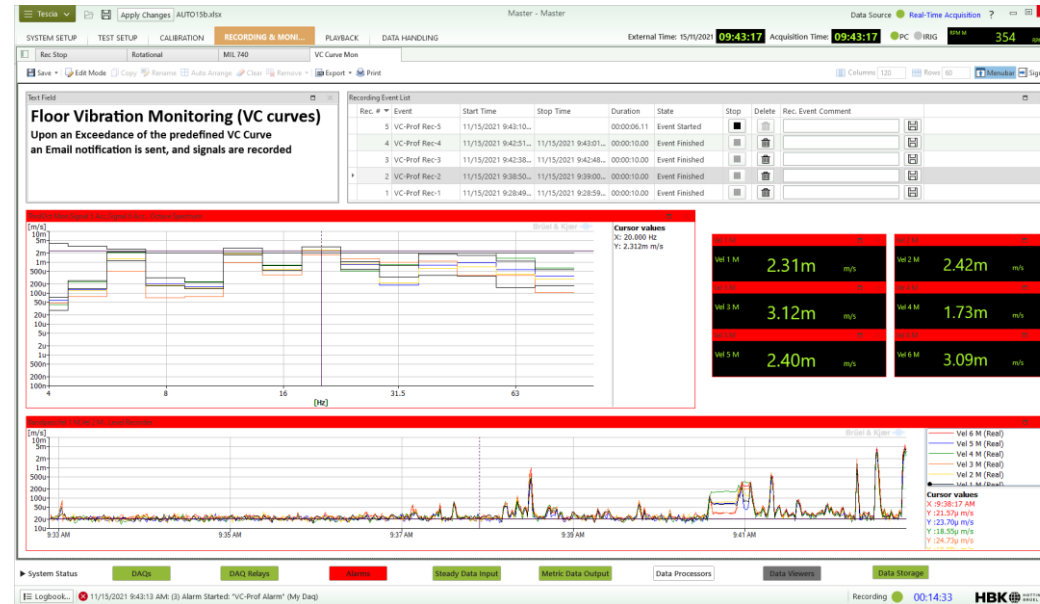


Reliability

- Will it measure without interruptions for a long period?
- If a cable is cut, or a unit disconnected, will the system continue to measure?

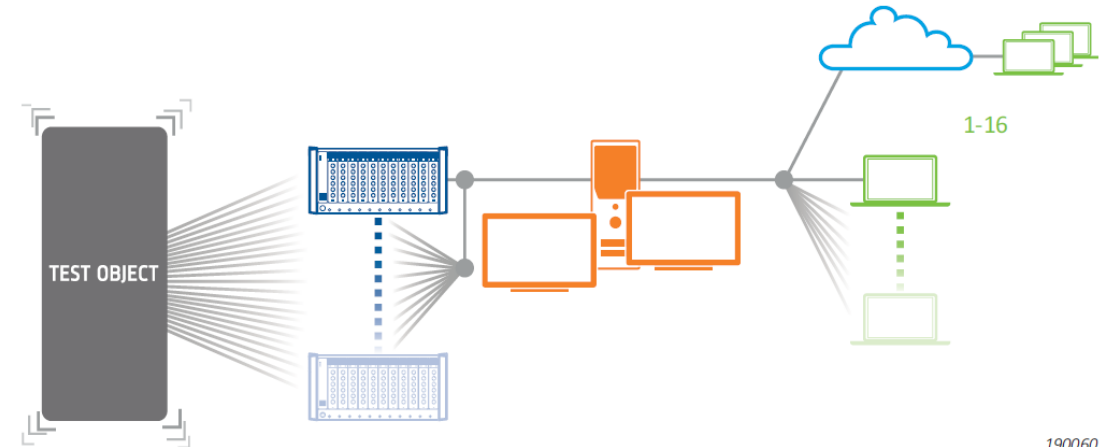
Notifications

- In Screen
- External Alarms
- Emails/texts



Data Distribution

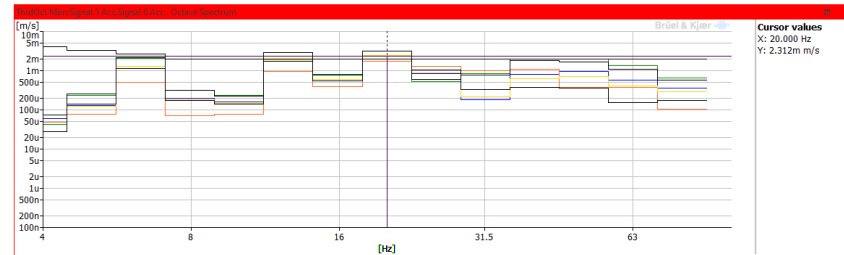
- View results in multiple screens
- View results in other stations
- Stream raw data in real time to other stations



▲ Output recordings



▲ Output analyses



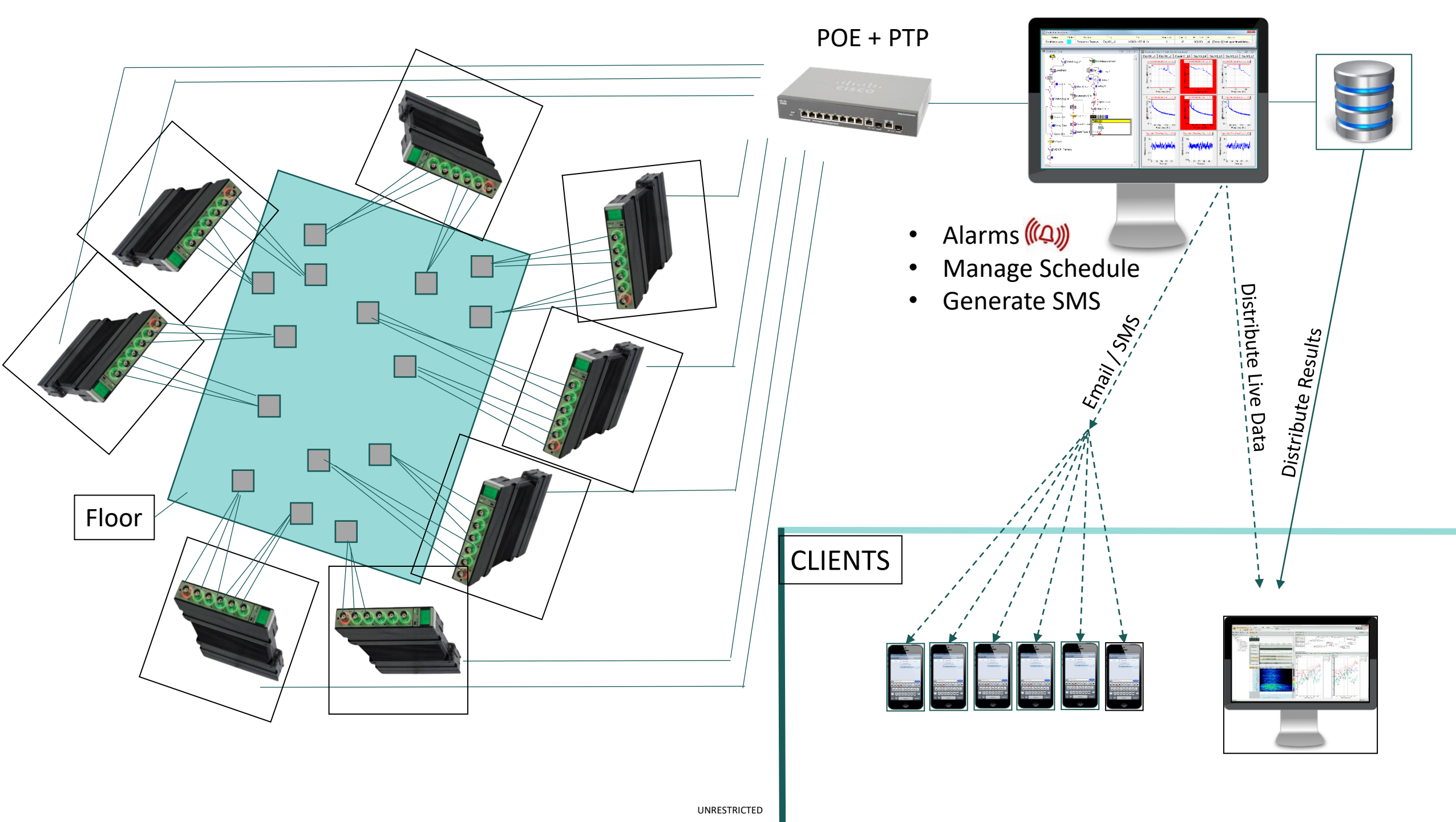
Vel 1 M	2.31m	m/s	Vel 2 M	2.42m	m/s
Vel 3 M	3.12m	m/s	Vel 4 M	1.73m	m/s
Vel 5 M	2.40m	m/s	Vel 6 M	3.09m	m/s

▲ Output additional recordings and analyses on demand (Events)

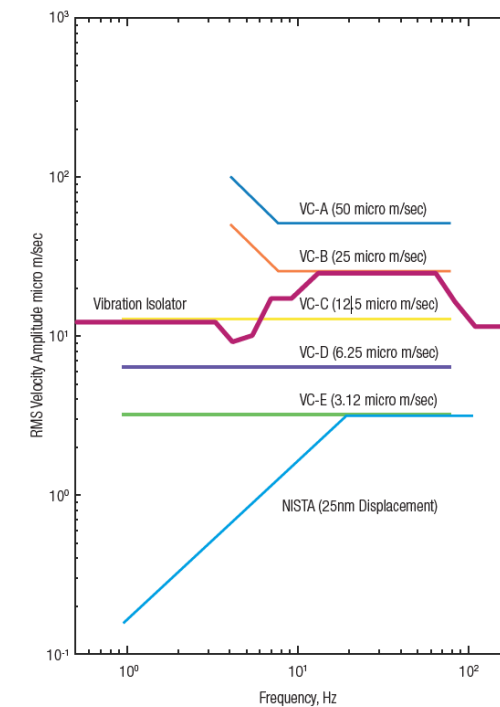
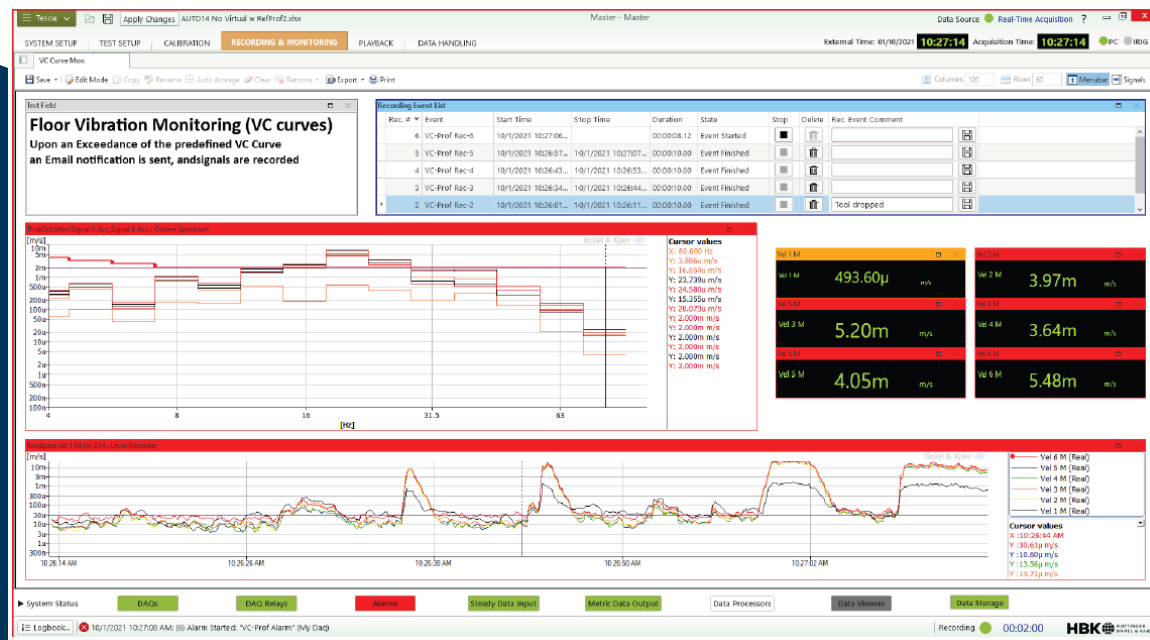
▲ Data should be clearly labelled, and easy to find

Ground Vibration Example





Tescia Demonstration



Thank you, for your attention!