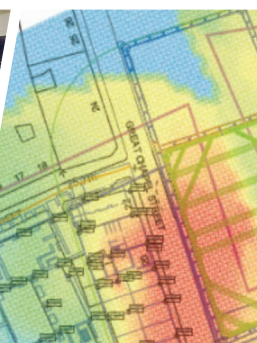
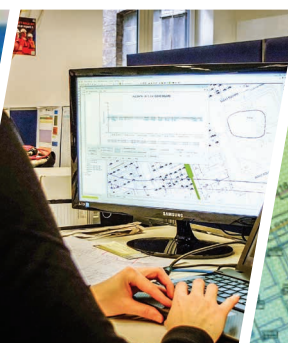


The Geo Structural Monitoring Experts





Getec specialises in providing instrumentation and monitoring solutions for a wide range of applications.

We focus on producing reliable, repeatable data and presenting the results to our clients in the most effective and user-friendly way.

Getec designs, installs control and monitoring systems that provide our clients with the essential information they require to manage their assets or projects.

Getec provides expert management to assist your project, from the earliest stages of design, giving advice on the best instrumentation advice to on-site project management.

Getec has a desire to bring the latest innovations to the instrumentation and monitoring sector. It selects its partners

carefully to provide a world class service that you would expect from a Keller company.

Although we are a global organisation, our regional structure means that our businesses are close to their customers and can respond quickly to their needs. Whatever the size of the project and wherever it is, we are on hand to offer an excellent service.





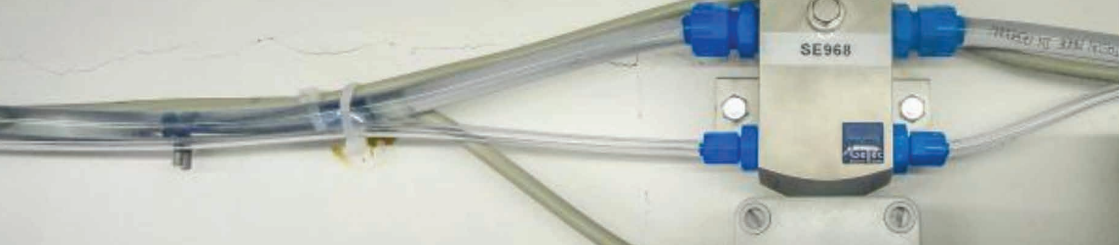
Expertise

Getec provides the following expertise to the construction, Geotechnical and structural health industry:

- Manufacture, install and commission of Liquid Level measurement cells.
- Bespoke instrumentation & monitoring systems based on GIS platforms for real-time structural and ground monitoring.
- Software systems for Compensation, Jet, Permeation Grouting.
- Geotechnical Software.
- Geotechnical Instrumentation. Source, supply, install and commission
- Shape Accel Array ,supply, install and commission
- Fibre Optic instrumentation for Geotechnical and Structure monitoring
- Management and Monitoring Engineers to deliver your monitoring project
- Excavation Monitoring
- Wireless Bi- Axial Tiltmeters
- Surveying and Robotic Total Stations
- Excavation Monitoring
- Tendering and Bid assistance

The above components are supported by experienced management and site operatives, with real world experience in the planning, installation, reporting and delivery of monitoring systems.





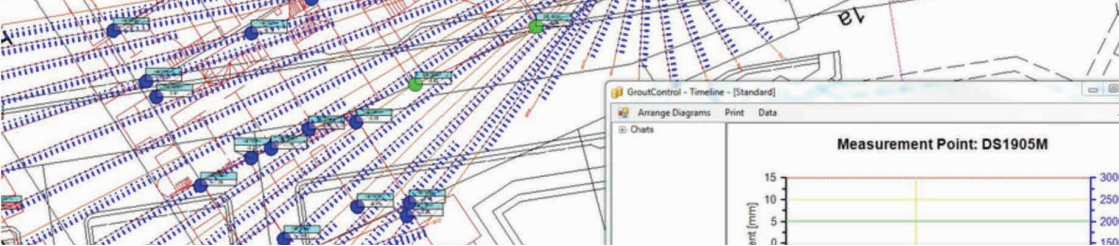
Hydrostatic Level Cells

A hydrostatic levelling cell system allows for accurate real-time measurement of structures for vertical movement, be it either settlement or heave.

Typical Applications include monitoring of buildings, excavations, railways, bridges and tunnels. This system is especially adapted to an environment where conventional survey techniques would not be possible. Benefits of the system are the high accuracy, the ability to completely monitor structures on all sides with one system and low maintenance. Getec use biaxial tilt-meters to provide a complete settlement and tilt package for structural measurement.

We are skilled in the effective design of systems, the installation and commissioning and the long term maintenance. The system functions well with temperature and with a very fast system for data acquisition, archiving and visualisation, making it an essential system for controlling risk critical such as compensation grouting and tunnelling.



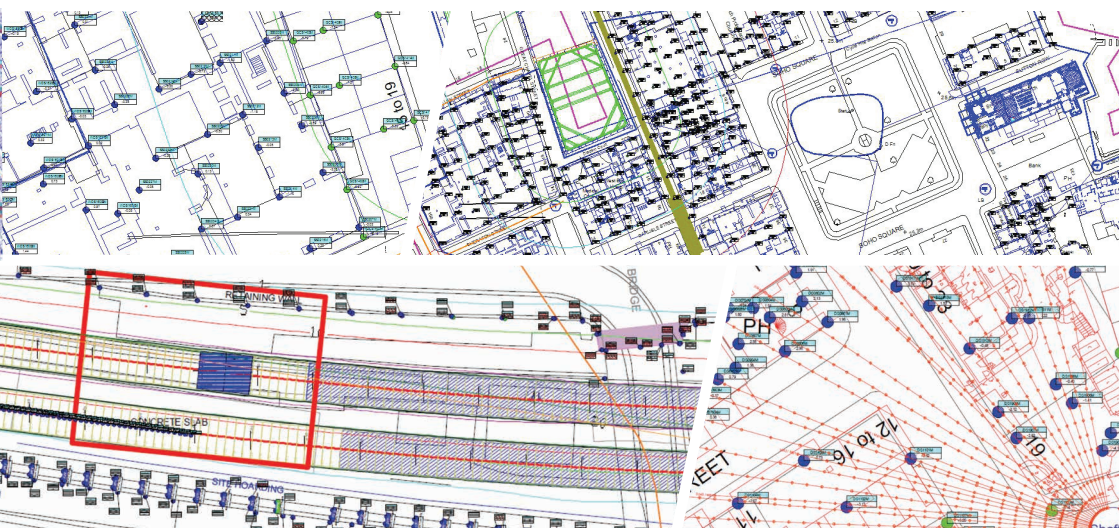


gtcVisual®

Monitoring requires a powerful means of visualisation that can be adaptable to suit a client's needs. Getec recognises this, and has developed gtcVisual® based on our own site experiences and feedback from Clients over the last 10 years. gtcVisual® is the first module in a series available for the construction professional. Modules that can be added to gtcVisual® include GroutControl®, JetGrout, and ATDS®.

Data from a variety of Geotechnical instrumentation, structural instrumentation, Geodetic and manual surveying is processed and archived into formats required for specific projects. gtcVisual® provides a GIS view to the whole project, which can be scaled down to view at a particular locations. gtcVisual® can be viewed in playback mode set from key dates inputted by the user. This is a facility that user's viewing the interaction between site activities and instrumentation find essential. The monitoring data can also be interpreted using

graph and timeline functions. The gtcVisual® software is compatible with all instrumentation inclusive of fibre optics. The software is developed by Getec and can be adjusted to provide end user requirements. The gtcVisual® monitoring package also provides sophisticated alarm systems via the trigger level system implemented on site. The monitoring package is intuitive and training provides a high level of end user familiarity to be able to analyse, report and discuss monitoring issues.





Automated and Manual Surveying

Getec uses the latest technology for geodetic measurements. We use robotic total stations in networks for monitoring structures, railways or excavations and trained surveyors to undertake manual monitoring using digital levels.

Data is sent from all instruments and survey teams to our databases for our (or the client's) engineers to view the data in various graph modes. The survey data is configurable in slopes, deflection ratios and settlement or movement in all planes.

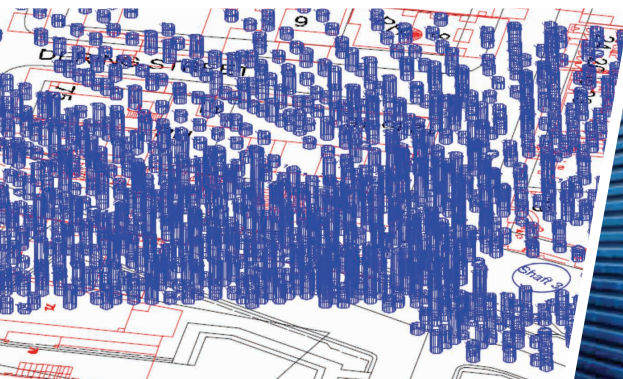
Getec offer a full supply, installation and maintain survey package with our managers and engineers being time served geodetic professionals.

Grout Control®

The control of complex grouting works for buildings in the influence of tunnelling projects is imperative for any contract.

GroutControl® is a measurement system capable of displaying the surface settlement in real time as well as writing and reviewing grouting

instructions to purpose built grouting pump containers. GroutControl® monitors grouting data (borehole position, grouting phases, initial grout pressure, final grout pressure, grout volume per step and cumulated) in real time with monitoring data.





Geotechnical Instrumentation

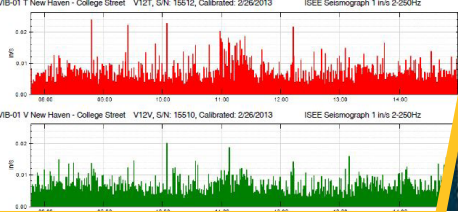
Getec install all types of Geotechnical instrumentation. Getec Engineers provide the method statements, risk assessment and on site supervision for the installation. Using accredited drilling companies for in ground works and our own installers for in -ground and structural installations.

Getec source , supply and install the following:

- Inclinometers (manual and Mems IPI & Shape Array)
- Single and Multi-Point Piezometers
- Multipoint Auto Extensometers
- Deep Datum's
- Fibre Optic Piezometers
- In Pile and DWI IPI and Shape Array
- DWI Toe drill outs
- Prop Strain Gauges
- Crack meters
- Tilt meters (Uniaxial & Biaxial)



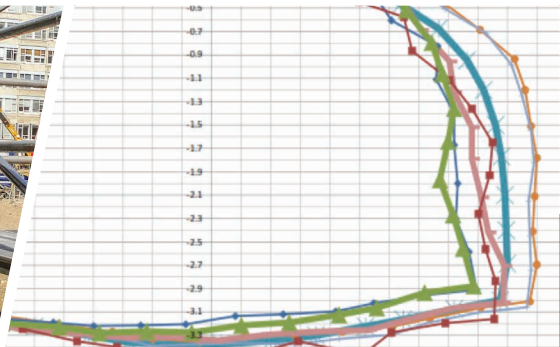
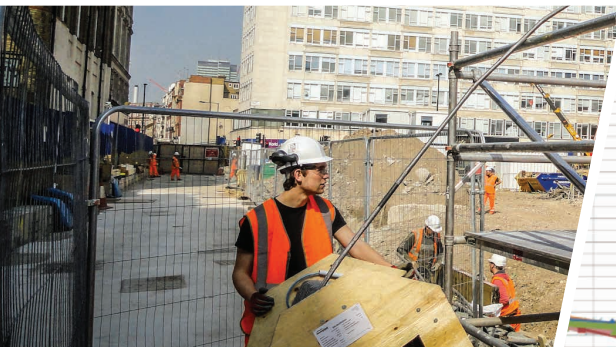
Geotechnical Instrumentation benefits every construction phase by determining initial site conditions and confirming laboratory testing results. It is used during construction to enable the site team to retain construction control, enhancing relations with stakeholders and **the opportunity to provide value engineering . The long term performance of the ground and structure can also be monitored and evaluated post construction.** The use of instrumentation provides knowledge to designers to enable more efficient designs and for engineers to provide efficient construction methods.



Vibration, Noise and Dust Monitoring

Getec is pleased to be able to provide the Sigmecom INFLRA system. A complete plug and play measurement system – from sensors to web presentation and gtcVisual and Getec QuickView reporting.

The INFLRA system makes it easy to conduct advanced measurements in the field, with little or no human interaction. A variety of environmentally sensitive parameters can be measured, such as vibration, sound and dust. The data is instantly uploaded to a cloud base, making viewing and reporting easy and relevant. Data can be integrated into many of our monitoring software formats. Getec Engineers install and commission the site equipment and provide training on the reporting protocol. All European and American standards can be used.



Shape Accel Array

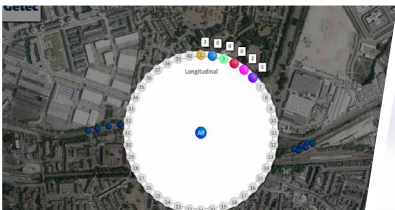
Getec use the Shape Accel Array manufactured by Measurand for accurately monitoring retaining walls, large slab movements, sewer deformation and drilling inclination monitoring. The SAA can also be used for vibration monitoring. SAA is a string of rigid segments separated by joints that can move in any direction but cannot twist. MEMS gravity sensors measure tilt in two directions. Processors transform the position (e.g. X,Y & Z) of each sensor to produce shape and change of shape. The SAA data can be used directly in the gtcVisual® monitoring software.



Technology Partner

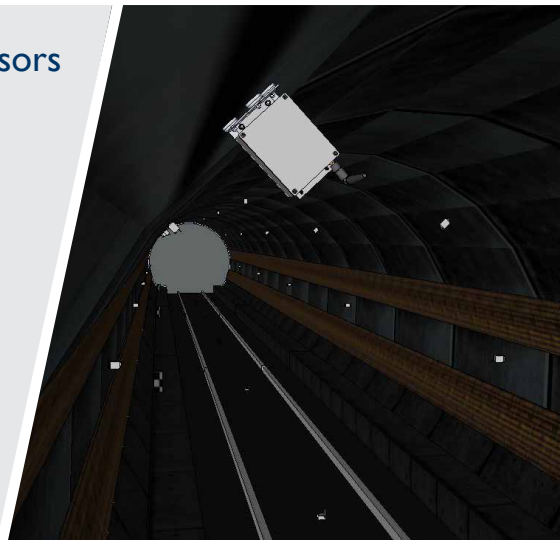
Fibre Optic Monitoring

Fibre optic technology is a innovative method of measuring strains in structures and geotechnical processes. Getec uses fibre bragg technology to provide bespoke monitoring solutions. Getec partner with Sylex to provide a complete system design and monitoring solution. The advantages of using fibre optics, especially for tunnel and sewer monitoring is that it is an intrinsically safe method of measurement and will read micro strain directly and real time. The fibre optic unit has a high life time in situ and requires no individual calibration. Measurement is based on light and therefore large distances of sensors can be installed. Fibre optics have fine measurement accuracy and can be read into our monitoring databases as well as standalone mobile systems. Fibre optics are used to measure pipelines, props, tunnels, sewers, bridge stays, bridge decks, water levels, ground extension, embankment strain, railway beds and roads.



Wireless Tilt Deformation Sensors

Getec partner with Senceive to provide their clients with a one stop solution to their monitoring requirements. The wireless flatmesh tilt meter design and output is a perfect solution for tunnel deformation monitoring and track twist and cant calculations. Getec and Senceive engineers and installers are LU, NR and SERCO certified. We provide a full range of condition and track geometry surveys prior to works. Instrument data is sent to either gtcVisual or Getec Quick View software or apps for viewing.



Job Experience

- X-FEL Hamburg- Instrumentation and software
- U4 Hafencity Hamburg – HLC, Instrumentation and Software
- Wehrhahn-Linie Düsseldorf- Instrumentation and Software
- Metro Line BI, Rome- HLC and Software
- Tunnel Brixlegg / Jenbach, Germany – Instrumentation and Software
- Victoria Station Upgrade Trials, Instrumentation
- British Museum, London - Monitoring
- Seaton Ground Investigation, Devon – Instrumentation
- Heathrow Airport Terminal 2, London – HLC for structure
- Avonhouse., Bond Street Station, London –HLC for structure
- Crossrail C300 /C410 Western Running Tunnels, Bond Street and Tottenham Court Road Station. London- Instrumentation, Monitoring, Software, HLC, Management
- Crossrail C410 Compensation Grouting, London – Software
- Crossrail C501. Moorgate Station Shaft London- Instrumentation, software, management
- Crossrail C511. Durward and Cambridge Heath Shaft London - Instrumentation, software , management
- Crossrail : C310 Thames Tunnel London, London- Instrumentation & software
- C412 Bond Street Station . Software and instrumentation maintenance
- Wembley Central Station . HLC and monitoring software
- Jack County Plant, Texas . HLC and monitoring software
- Ohio Bridges Project , Kentucky . In ground instrumentation , pressure & settlement cell & realtime monitoring software
- Alabaster , Alabama . Auto Total Station and monitoring software
- New Haven , Conneticut . Vibration , survey and monitoring software
- Hamina , Finland . Vibration and Noise monitoring



Keller are the world's largest independent ground engineering contractor; renowned for providing technically advanced and cost-effective foundation, retention and soil treatment solutions. Our reputation is built on engineering excellence and a commitment to continual innovation.

Around the globe we serve local markets with permanent operations in over 40 countries employing over 6000 people.

Some of our companies are leaders in their markets; for example Keller Grundläggning is Scandinavia's major force in Soil Mixing Technology. In Singapore, Resource Piling is one of the largest Piling Contractors providing foundations for numerous multi-storey structures in South East Asia and our fledgling business in Russia has recently completed vibro compaction and jet grouting at the Sochi winter Olympics site.

Wherever your project is around the world there is a Keller Company that can offer a solution to your problem.



Getec is committed to a future free of injury

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