

DATA COLLECTION FOR *ELECTROLEVEL* SYSTEMS

Case Study 1.

Monitoring with remote alarm facilities

Tension cracks in the rock supporting a cliffside road were monitored at five locations, chosen carefully with reference to the visible signs of the cracks. Tilt signals in both axes were transmitted from the dual signal conditioning unit through buried multicore cables to a central control cabinet.

The cabinet provided the power supply to the sensors and a dual channel digital display for manual readings. The readings from all channels were checked against preset levels and if these were exceeded, a telephone link was activated to alert the police, with a pre-recorded message. Traffic signs were also illuminated.

An extension of such a system could, for example, transmit the channel readings in sequence via the telephone line to a decoder at a remote location interfaced directly to a computer. Cable lengths from tilt stations to the central unit up to 1 Km are possible and subsequent distances via telephone link are unlimited.

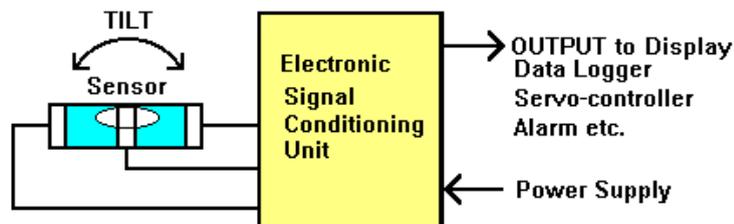
Case Study 2

Monitoring with local data storage

Subsidence caused by deep mine workings was monitored at three locations. Tilt signals were sent via cable to a data logging unit operated by batteries. An interface circuit converted the incoming signals in sequence into digital information which was then formatted and stored in a solid state data storage cassette under microprocessor control.

At intervals of about 4 weeks (depending on the sampling rate) this data cassette is exchanged for a blank one and the full cassette taken to home base where its data is read by a computer terminal. Options for this type of system include mains power if available, with battery backup in case of failure and solar powered versions for remote locations.

Many different types of data storage can be used to be compatible with the user's existing hardware. For example SIM cards, Flash Cards, PCMCIA Cards can all be interfaced to Tilt Measurement Systems. Using a portable computer and a link cable data can be downloaded onto the hard drive for later analysis.



ELECTROLEVEL Schematic System

Case Study 3.

Cable Free Systems

In applications where cable connected systems are impossible, or expensive to maintain because of breakage etc., a fully remote system must be used. One system designed by the company shows what can be done in these circumstances. The tilt signals were digitally encoded at the measuring station and transmitted over VHF radio link using a high integrity telemetry technique. The receiving radio - a specially adapted standard walkie-talkie type - decoded the signals at a central monitor point, for subsequent processing. Large systems involving many monitoring stations and combinations of cable and radio connection are possible, subject to the radio licence regulations in the country of installation.

When large sites, e.g. Earth Dams. are instrumented, other sensors can be interfaced to the tilt system to measure head, pore pressure, strain and other parameters.

Tilt Measurements' Engineers are available for discussion of any possible applications and have many years' experience in the design of systems for customers from a diverse range of industries.

All information herein is believed to be correct but no liability is accepted by Tilt Measurement Limited for any application in respect of fitness of purpose, infringement of intellectual property rights, or consequential loss or damage howsoever caused.

TILT MEASUREMENT LIMITED

HORIZON HOUSE LONDON ROAD BALDOCK HERTS.. SG7 6NG U.K.
TELEPHONE - 44-(0) 1462-894566 FAX - 44-(0) 1462-895990
e-mail sales@tilt-measurement.com www.tilt-measurement.com
Ó Tilt Measurement Limited 2000