RTU Based Basin, Canal and River Level Monitoring System

All installations require timely notification of rapidly changing conditions while minimising the cost of communications. Instead of the continual polling that is characteristic of SCADA systems, TBox devices use push technology to communicate only when necessary. Push technology best utilises inexpensive public networks and allows remote sites to operate on the least expensive plans.

The TBox alarm management system has been employed to inform operators of alarms or changing live conditions. The system can then escalate reporting if acknowledgement does not come through in a user-configured time.

Another key requirement is the robust construction necessary to operate outdoors as some installations may find themselves temporarily under water. The TBox Nano has an IP68-rated enclosure which provides complete protection from dust, water spray, and even submersion up to 4 metres.
Requirements

Automation and data logging are secondary in most installations. Some systems have used TBox devices to automate processes such as starting pumps or raising/lowering gates in response to changing water levels. In most cases however, users instead take advantage of the timely notification from TBox devices to allow operators to take decisive albeit manual action.

When the programmable automation capabilities of TBox are not used in water level monitoring applications, the programming software tools still expedite configuration of calculations such as volumetric flow based on a level reading.

TBox devices record historical logs which can be viewed and transmitted in tabular or trend graph formats. The historical reports include a variety of information on water levels and weather conditions and meet the requirements of regulatory agencies.

TBox devices further record operational information which can be used for maintenance purposes. Equipment run times and conditions such as ambient temperature are combined in maintenance reports and allow TBox to notify staff of an approaching milestone.

Conclusion

For water level monitoring systems, TBox:

- Monitors all conditions such as flows, levels, weather conditions and the status of remote site operations
- Uses push technology to notify multiple recipients of alarms and rapidly changing live conditions
- Escalates alarm reports if not acknowledged
- Efficiently uses public networks and minimises transmissions by sending reports via e-mail, SMS text or FTP via IP only when required
- Serves web pages which comprise a very low-cost HMI for depiction of live and historical information
- Generates historical reports and trends for regulatory agency auditing, record-keeping and system maintenance
- Minimises power draw in order to keep power systems costs as low as possible
- Allows the configuration of volumetric flow based calculations utilising the programming software tools
- Operates over a wide temperature range and is available in an IP68-tested housing which allows installation in outdoor areas that also might be briefly submerged