# Cello 4S



A remote telemetry outstation delivering a scalable machine to machine (M2M) solution reducing user operating and capital costs.

Multiple site parameters are monitored, recorded and transmitted over 2G (SMS/GPRS) or 3G networks, providing a comprehensive multi-application solution for the Utilities and Industry.

### **Key Features**

- Build options for up to two pressure, eight user programmable digital or analogue inputs and two individually switched 12 Volt outputs for powering 4-20mA loops
- Easily set-up using Technolog's innovative optional ⊋WiFi communication interface
- Proven bidirectional Cello communication with automatic gap filling ensuring high level data reliability and supporting remote product configuration
- Remote set-up, monitoring and control through locally deployed PMAC software or web based WaterCore platform
- Facilitates closed loop control of pressure reducing valves, pressure sustaining valves and variable speed pumps
- · Water temperature measurement

- Advanced channel profile and threshold alarms
- High frequency (100 Hz) pressure transient detection critical to extending asset life and network modelling
- High accuracy battery monitoring optimising maintenance and asset management programmes
- Integral movement detection aiding preventative maintenance routines, asset tracking and enhanced data integrity critical for reporting
- Low power design provides typically > 5 years battery life.
   Support for external battery packs
- Rugged, portable and waterproof to IP68
- WITS compatible and verified





## **Technical Specifications**



### **Standard Build Options**

Inputs	2i - Configurable for up to two digital or analogue inputs 1P2i - Configurable for one pressure and up to two digital or analogue inputs 2P2i - Configurable for up to two pressure and up to two digital 1P7i - Configurable for one pressure and up to seven digital or analogue inputs (on request) 8i - Configurable for up to eight digital or analogue inputs; supporting 12v flash powering
Pressure Sensors	1P2i, 2P2i & 1P7i options only Input range: 0 - 100 m, 0 - 200 m; 0 - 10 bar, 0 - 20 bar; 0 - 150 psi, 0 - 300 psi Programmable: +/- 0.5% or +/- 0.1% resolution  - Supports average and statistical recording of pressure (min, max, mean, standard deviation) over logging interval
Outputs	<b>8i option only:</b> Two independent digital outputs for external power control and alarm signalling (0 and 3 volt levels, active low, 100k output impedance) or two individually switched 12 Volt outputs for powering 4-20mA loops

### **Standard Specification - Common to all Variants**

Electrical Inputs	Configurable channel strategies: Voltage, event, tamper / status, count, frequency and encoder Digital: Pulses counted over, and recorded at, pre-set intervals. Tamper/status and event time supported Frequency input: Switch closures or logic pulses, maximum frequency 16 kHz, programmable sampling period Analogue: 0 - 2.5V, 0.01V resolution as standard, <1mV with 8 channel option
Modem	Integral antenna: Optional external antenna - Support for 2G / 3G frequencies, optional 2G permanent network connection SIM: User replaceble SIM card
Data Transmission	Type: 2G / 3G frequencies Interval: 1 min to 1 month at programmable date and time - WITS option (factory configured)
Memory	Size: 512K, allocable between channels as required (max 64K per channel)  Type: Solid state, non-volatile
Clock	Type: Crystal controlled calendar clock with leap year adjustment  - Option to synchronise clock to local network at regular intervals
Supply	<ul> <li>User replaceable Internal lithium battery pack, typical battery life &gt; 5 years depending on mode of use</li> <li>High capacity external lithium battery pack, user replaceable</li> </ul>
Recording	Interval: Programmable between 1 second and 1 hour Data storage: Rotating store or store until full
Alarm Dial-Out	<ul> <li>4 threshold and profile alarms, with hysteresis and persistence, independently configurable on each channel</li> <li>Option to update data on alarm and more frequently thereafter</li> </ul>
Environmental	Operating ambient temperature: -20°C to +50°C Ingress protection classification: IP68 (submersion at 1m depth for 24 hours)
Mechanical	<b>Dimensions (mm):</b> 149 x 146.5 (h) <b>Weight:</b> 0.750kg







