

## Overview

Introducing the μWEB Lite family of Wireless TCP/IP modems specifically designed for machine-to-machine (M2M) applications. This family consists of a range of modules and boxes suited to integration within OEM equipment or adapting legacy equipment into an end-to-end system. Comtech offer design license and private label branding to meet your product lifetime needs. The μWEB Lite family has been specifically designed to achieve rapid time to market with minimal investment by integrating core application level features complemented by a toolset which enables rapid application upgradeability both locally and remotely.



OEM Modules	Box
μWEB Lite GSM/GPRS	μWEBBox Lite GSM/GPRS

# Wireless TCP/IP modems

enhanced M2M Features

easy to use

## μWEB Lite is more than just a wireless modem!

It not only includes a TCP/IP stack for ease of communication over GPRS and the Internet, but also higher application level modes suited to M2M applications. The automated mode enables the unit to wake-up upon an I/O change, time schedule or network prompt and automatically report I/O status by SMS, GSM or TCP/IP socket connection over GPRS. This is ideal for standalone applications where there is no local microcontroller. μWEB Lite supports analogue and digital I/O with on-board E<sup>2</sup>PROM for data logging purposes. The E-mail mode enables the data logged into the E<sup>2</sup>PROM to be sent as an E-mail attachment. Likewise the FTP mode supports data transfer between the on-board data log and central server. A key benefit of the FTP mode is the additional support for streaming data directly to the host serial port for large data files.

## Key Features

- GSM (CSD, SMS, voice)
- GPRS (Class B 4+2 Class 10 Consult Comtech)
- On-board SIM Holder
- Quad band (900/1800 Mhz, 850/1900 Mhz)
- Extended AT Command
- TTL/RS232 serial options
- Upto 8 programmable digital I/O
- Upto 4 analogue inputs
- ROHS Compliant
- TCP/IP, PPP, DNS protocols
- Serial TCP/IP socket tunnelling
- 3 Powerful MODE options
  - ⇒ Automated standalone mode
  - ⇒ E-mail (with data log)
  - ⇒ FTP Client ( with data log or direct host streaming)
- Upto 64Kbytes data log E<sup>2</sup>PROM
- μWEBBox variants offer 8-40v PSU, enclosure and signal conditioning.

## Benefits

- Ease of development
- Ease of Integration
- Fast time to market
- Reduce costs
- Increase revenues
- Increase reliability
- Reduce downtime
- Improve customer service
- Reduced customer support
- Identification of usage
- Ongoing service revenues
- Ease of maintenance
- Accurate information
- Brand awareness

# Powerful and easy to use Application Modes

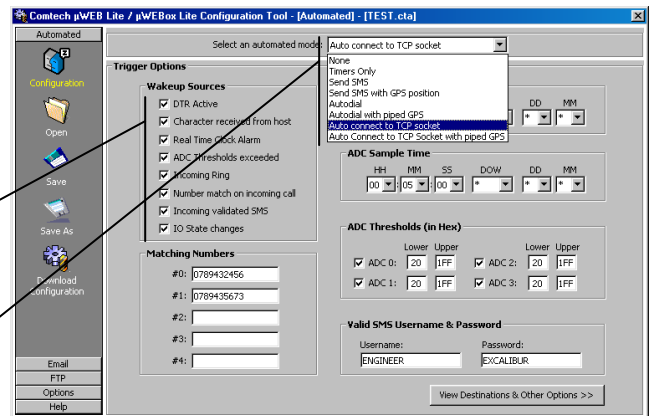
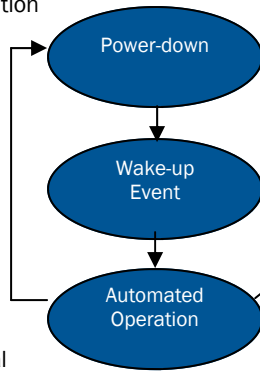
## Automated Mode

This mode enables an automated operation to be performed in response to one or more wake-up events. Following the automated operation, the  $\mu$ WEB Lite may return to a power-down state or remain awake enabling a local or remote processor to communicate with the device.

### Wake Events

$\mu$ WEB Lite can initiate automated operations in response to the following wake-up events: -

- *Local I/O changes* - including digital inputs, analogue threshold crossings and the presence of serial data and DTR.
- *Real Time Clock (RTC)* - which forces automated operations at regular time schedules.
- *Network prompts* - which enables central users or server utilities to force automated operations in response to validated incoming calls (CLI) and SMS prompts.



## Automated Operations

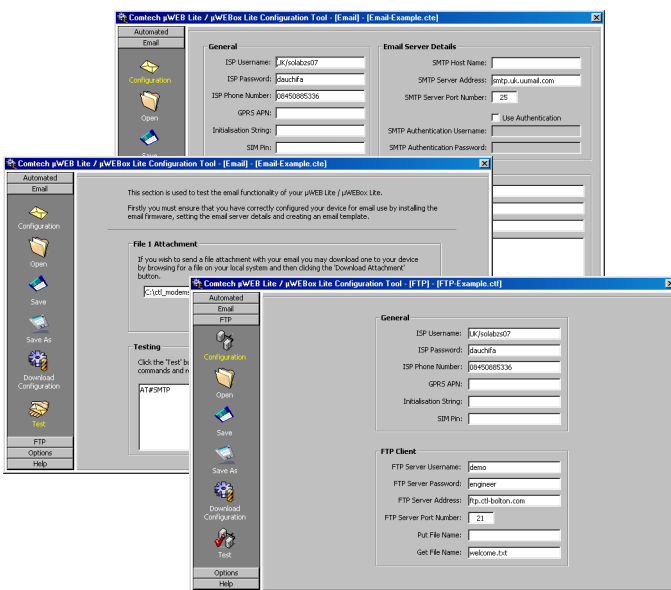
In response to the wake events, an automated operation is invoked. This includes *timers* for managing low power operation, sending SMS messages with optional I/O status, autodialing over GSM/GPRS with optional TCP/IP protocols and streaming of I/O and GPS status.

## E-mail Mode

The E-mail mode option supports an SMTP client for transferring data to a central E-mail server. Data transported in this way can be delivered directly to PC users or imported to a central application.

The local host communicates with  $\mu$ WEB Lite through the host serial port using extended AT-commands. This can be used to configure the device directly from the host or via the PC configuration utility. Data can be stored in the body of the email or in a separate data log which can be sent as an e-mail attachment.

E-mails can be sent to single and multiple recipients with support for true e-mail addresses and aliases. SMTP authentication is supported to enable mail servers to identify the e-mail source device.



## FTP Mode

The onboard FTP Client enables the  $\mu$ WEB Lite to transfer data files between the attached host and a central FTP server. This can be achieved using the onboard E<sup>2</sup>PROM as non-volatile data storage or streamed directly between the host serial port and central server. This mode enables the host to PUT, GET, MOVE and DELETE files over the GPRS network and the Internet.

### FTP using the on-board data log

The E<sup>2</sup>PROM data log may be populated by the host using extended AT-commands, which can then be FTP'd to the central server. Likewise, files may be retrieved from the central server and stored in the E<sup>2</sup>PROM data log, which can then be read by the local host.

### Streaming FTP

Under control of the local host, files can be streamed through the  $\mu$ WEB Lite device to/from the central FTP server. Comtech offer customisation services to aid integration with host applications.

## Applications

- Automated Electronic Signs
- Remote Utility Metering
- Vending machines
- Gaming Machines
- Remote Data Collection
- Telematic Data Collection
- Industrial Systems
- Environmental Control
- Domestic Appliances
- Security Systems
- Tank Level Monitoring
- Parking Meters
- Traffic Systems
- HVAC

... Many More ...

# Example Solutions and Case Studies

## Automated Cold Chain Monitoring

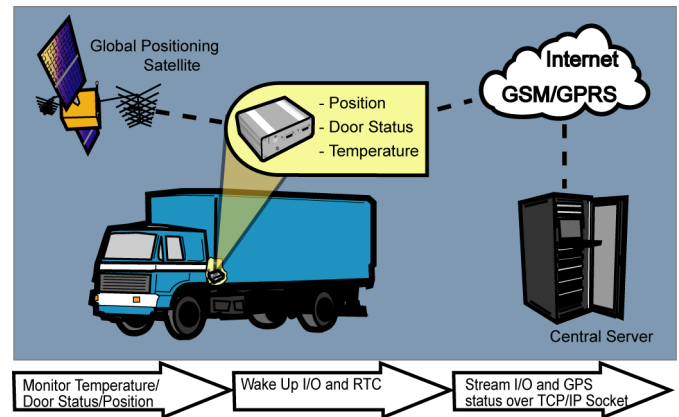
Transportation of chilled and frozen foods requires monitoring of temperature to ensure that food quality and health and safety standards are not compromised during transit.

### Problem

Food and food service companies need to manage the supply chain process to maintain the quality of perishable foods to optimise shelf-life and minimise losses. Variations of temperature outside acceptable limits create problems as a result of cooler and generator failures, extended transit times due to traffic congestion and temperature losses during loading and unloading.

### Solution

µWEBBox Lite with external GPS support identifies the vehicles position. Furthermore the status of the rear door (open/closed), cooler, generator, internal/external temperature and ignition can be sensed through onboard analogue and digital I/O. µWEBBox Lite can automatically stream its I/O status to a central server application over the Internet via a GPRS TCP/IP socket connection based on a time schedule and I/O alarm events.



### Benefits

- Maintaining food quality
- Improved operational consistency
- Optimised shelf-life
- Reduced losses
- Reduced insurance risk
- Improved compliance
- Audit trails

## Test Machine Monitoring using E-mail

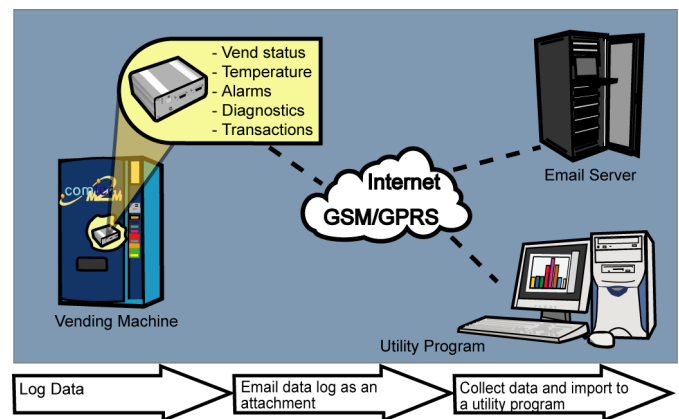
New products are often trialed in the market before they are formally launched. This is important for high volume and complex products used by consumers such as domestic appliances, vending machines, gaming machines etc.

### Problem

Information is manually collected from the machine or by a clip board exercise, where 3rd parties are often used outside the control of the manufacturer. Slow and inaccurate data collection results in products not being fully optimised yielding poor reliability, increased maintenance costs and downtime.

### Solution

µWEBBox Lite supports an on-board data logging memory for non-volatile storage of machine status information. The data log is E-mailed over a wireless GSM/GPRS Internet connection directly to the manufacturers server, where a utility program automatically imports the data log enabling reports to be generated e.g. using Excel. This enables the OEM manufacturer to optimise the design prior to launch.



### Benefits

- Design optimisation
- Increased reliability
- Reduced downtime
- Improved customer service
- Cost savings
- Reduced customer support
- Identification of usage
- Increase revenue

## Case Study—Automated Electronic Signs

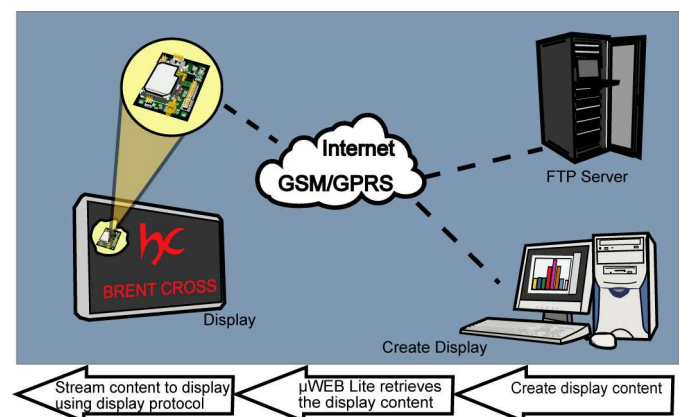
A merger between a display and an advertising company resulted in a service-based business model for dynamic delivery of display content. A shopping centre required regular customer information updates in response to local events and advertising needs.

### Problem

The display technology only supported programming through a local serial port running a proprietary protocol. Daily update of display information placed a burden on the maintenance department which would otherwise result in out-of-date information.

### Solution

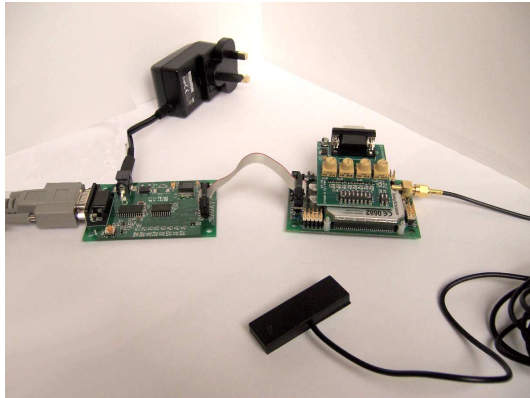
A µWEB Lite module integrated within the display enabled graphic files to be downloaded from a central FTP site and streamed to the local display. The FTP session was initiated in response to an SMS prompt which identified the server application (*patent granted*). Based on a proven platform, Comtech incorporated the customers proprietary protocol to bridge the format of the streamed data into a form that the display could understand.



### Benefits

- Accurate information
- Improved customer service
- Less customer frustration
- Increased brand awareness
- Increased brand sales
- Ease of maintenance
- Low cost solution
- Service revenues

# Development Tools and Order Information



## Starter Kit

A starter kit is available for each μWEB Lite product to simplify evaluation and ease design integration. An I/O board simulates analogue and digital I/O. An RS232 board provides an interface to an attached PC, which enables a *PC Configuration Tool* to configure, upgrade firmware options and verify the μWEB Lite operation prior to integration with the host application. The Starter Kit includes: -

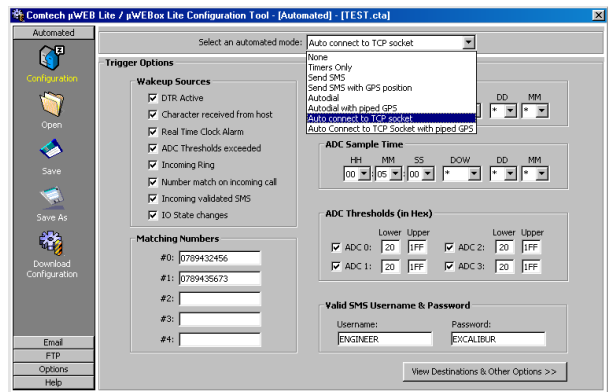
- μWEB(ox) Lite option
- RS232 Interface board
- I/O simulator board
- RS232 cable
- Cell block antennae
- Power supply
- PC configuration tool
- CDROM

## PC-based Configuration Tool

The μWEB Lite product family is supported by a *PC Configuration utility* which provides ease of configuration for each mode, firmware upgrade and a test utility for ease of use. Configuration files are included which support a plethora of documented application guides.

## Customisation

Comtech offer a design customisation service for the μWEB Lite product family. By integrating your application over proven M2M technology, we can offer a rapid time to market with minimal risk to deliver a least cost solution. Contact Comtech to discuss your application needs.



## Core Feature Matrix

Order Code	Description	GSM (900/1800MHz)	GSM (850/1900MHz)	GPRS (4+2) Class 10	5-15v PSU	TCP/IP/DNS/PPP	TCP Serial Sockets	IO - 8 dig, 4 an in	2 digital in (30V tol)	2 digital out (O/O)	3 analogue in	Automated / FTP / Email	64 Kbytes E2prom	5-15v PSU	8-40v
FR06000207	μWEB Lite GSM/GPRS TTL ROHS	•	•	•	•	•	•	•	•	•	•	•	•	•	•
FR06000218	μWEB Lite GSM/GPRS RS232 ROHS	•	•	•	•	•	•	•	•	•	•	•	•	•	•
FR06000208	μWEBBox Lite GSM/GPRS ROHS	•	•	•	•	•	•	•	•	•	•	•	•	•	•

## Tools and Accessories

Order Code	Description
FR06000222	μWEB Lite GSM/GPRS TTL Starter kit
FR06000224	μWEBBox Lite GSM/GPRS ROHS Starter kit
CABLE-004	PCB mount MMXC to female SMA cable

Order Code	Description
OEM-GSM-A10	Standard MMCX cellblock antenna
OEM-GSM-A9	Standard MMCX stub antenna
GSM-ANT-001	Standard male SMA cellblock antenna
GSM-ANT-002	Standard male SMA stub antenna

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