



AS080 Wireless Meter-Bus Software Stack

ENI3757-4 Compliant & Ported To Freescale MC12311 System-In-Package, Sub 1GHz Wireless Node Device

Preliminary Information – Subject to change © AMiHo 2011

AMiHo's AS080 is a standards compliant, Wireless Meter-Bus software stack which is ported to Freescale's MC12311 integrated and cost-effective, system-in-package (SIP), sub-1GHz wireless node solution. It is designed specifically for Wireless Meter-Bus, but it could also be applied to other ISM-band applications.

The Full Stack is a fully ENI3757-4:2005 compliant protocol stack of pre-defined extended functionality for use in Wireless Meter-Bus systems. It is available for license by customers who wish to integrate it into their own production hardware. An evaluation-only version is also available free of charge which can be downloaded from either Freescale's or AMiHo's websites. Table I provides the summary feature of the Full Stack and compares it to the Evaluation Stack. The Full Stack is supplied as object libraries along with support files (header files, linker command files, sample applications in source format, etc.).

The Full Stack uses an AT command interface and supports a very low current standby for battery powered application. It may be integrated into a stand-alone modem, with a serial AT interface, or as an embedded module which allows the user to run their application on the MC12311. Note that AMiHo can design and supply a stand-alone, full modem implementation using the Freescale MC12311 SIP with the AS080 stack embedded, to order.

Full low level platform radio drivers, Wireless Meter-Bus RF stack drivers with extended functionality implementing ENI3757-4:2005 are included, plus utilities and sample application code in source code format.

Features

- *Wireless Modem:* Use in stand-alone modem mode, or embed user application on-board. Modem can be designed and supplied to order.
- *RF Operation:* As defined for hardware by ENI3757-4:2005 and suitable for narrow-band and wideband operation throughout 868MHz ISM band.
- *RF Performance:* The stack embedded in the Freescale MC12311 offers class leading link budget of up to 127 dB at 4800 baud.
- *Software (Full Stack):* Full low level platform drivers and ENI3757-4:2005 Wireless M-Bus RF stack level drivers provided, including AES128 encryption and decryption - Supports Wireless Meter-Bus S, R and T modes.
- *Portable Code:* Although targeted at and optimised for Freescale's MC12311 Sub 1GHz Device featuring their 9S08 MCU architecture, the AMiHo code is highly portable and can be ported to other architectures on request.

Ordering Information

AS080-ILF

One time payable, Initial License Fee for the full version of AS080 Wireless Meter-Bus stack.

AS080-SMC

Annual Support and Maintenance Contract for the full version of AS080 Wireless Meter-Bus stack.

AS080-RYF

Royalty Fees for the full version of AS080 Wireless Meter-Bus stack. Can be pre-ordered in blocks of 10,000 units.

Ports for the AS080 onto other processor architectures are available to order. Please contact AMiHo directly.



Table I. Stack Features

Feature	Evaluation Version	Full Version
Modes supported	S and T	S, R and T (including R2, S1, S1m, S2, T1, T2)
Packet handling	48 bytes	255 bytes
Auto Answer	User	Context-sensitive automated answer, with user configurable patterns and responses
Interface	Binary and API AT and keyword command interface (*memory allowing)	Binary, API, keyword and AT command interface
Encryption	User	AES128
Addressing	Simple address mask and filtering	Versatile address filtering and masking to allow local network set-up
Networking	Uses definable address and address mask	Automatic network formation mode
Diagnostics	Simplified diagnostics. Simple packet sniffer RSSI Error counts	User configurable terse and verbose debug streams, with filtering on message types Packet sniffer Network statistics including: received packet counts; error counts, RSSI, channel occupancy
NV storage	User (*can be integrated if provided by FSL)	Integrated non-volatile storage in data sector
Timed wake-up	User/external interrupt	Timed wakeup from RTC and external interrupt
Power Optimisation	Normal mode and low-power standby	Normal, RTC and standby modes. Optimised transmit and receive power consumption
Test Modes	Ping pong Standby demo (*memory allowing)	Ping-pong mode for range evaluation Standby demo mode RSSI display Calibration and production test facility
Profiles	Built-in profiles for rapid switching	Built-in and user definable nv profiles for rapid switching
Other	Support for other 868MHz ISM band frequencies and power levels	Support for other 868MHz ISM band frequencies and power levels
API support	Identical serial and API support for higher-level interfacing	Identical serial and API support for higher-level interfacing Support for DSMR and OMS layers

Software

- ENI3757-4:2005 Wireless Meter-Bus stack
- AT command interface for stand-alone modem operation, optional binary mode for reduced compact modem communications
- Built-in profiles for rapid mode switching
- M-bus S, R and T mode packet interface
- AES128 encryption and decryption
- API to add higher layer Meter-Bus protocol
- API to allow other protocols to be added
- Packet sniffer mode
- Network formation mode
- Pulse counter
- Power management
- Highly portable code
- Low memory footprint

Support

- *Software Support:* Sample application code and application notes. Further support available from AMiHo and through the extensive support network of Freescale. Customisation of software is also offered.
- *Software Upgrades:* OMS and DSMR support and ENI3757:5 scheduled for 2012.
- *Tools:* Utilities supplied to help debug user application; supported by Freescale CodeWarrior.
- *PCTOOL:* GUI based PC software tool to assist Wireless Meter-Bus applications development and for demo software interface and diagnostics
- *Training and Field Support:* Training and support offered to assist customers at all stages of design, testing, installation and commissioning.
- *Continual Testing:* AMiHo test for interoperability to ensure compatibility in the field.

For further information and sales enquiries contact: sales@amiho.co.uk

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