m2m
your wireless competence

owa3X platform

A NEW POWERFUL OPEN M2M PLATFORM SUITABLE FOR THE WIRELESS APPLICATION YOU NEED TO DEVELOP

A NEW GENERATION OF OPEN, FLEXIBLE AND POWERFUL WIRELESS EMBEDDED COMPUTERS, PROVIDING FULLY WIRELESS CAPABILITIES FOR REMOTE MANAGEMENT AND MONITORING.

A UNIQUE PLATFORM TO DEVELOP TELEMETRY AND TELEMATIC APPLICATIONS WITH OPTIONAL IP67 ENCLOSURE FOR RUGGED CONDITIONS, INTERNAL ANTENNAS AND A WIDE RANGE OF CONNECTIVITY.

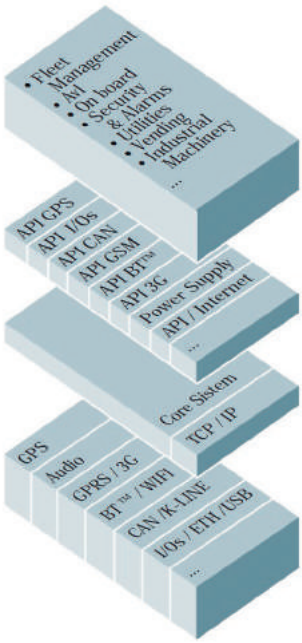
owa3X PLATFORM INTEGRATES:

- GSM/GPRS (optional Double SIM)
- GPS
- EMBEDDED IP FUNCTIONALITY
- WIDE VARIETY OF INTERFACES
  - ANALOG AND DIGITAL I/O
  - 3 RS232 & 1 RS485
  - 2 CAN, 2 K-Line & iButton
  - AUDIO
  - ETHERNET, MICROSD, etc.
  - USB

OPTIONAL COMMUNICATION TECHNOLOGIES:

- BLUETOOTH™ (Bluetooth 2.1, BLE)
- WiFi
- TETRA
- HSPA / UMTS
- SATELLITE
- I/Os Expansion Board

Wireless Embedded Computer



CUSTOMER APPLICATION

OWASYS SOFTWARE

OWASYS HARDWARE

ARM

ARM9 CPU 32bit
- 400 MIPS
- 32MB FLASH
- 32MB / 64MB RAM
- Industry Standard Architecture

LINUX and C
- Open Platform
- Complex Applications
- Flexible

PSU
- Robust for Automotive
- Very Low Power

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www.m2mgermany.de

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TECHNICAL SPECIFICATIONS

• Interfaces
– 10 configurable digital input/outputs.
  - 40V max inputs (logic low <3V, high >5V).
  - All inputs function as wake signals for low power modes.
  - All inputs can be used as counters (odometer). 32bit, 3kHz max.
  - 8 open collector outputs (100mA each).
  - 2 high-side switches to Vin for output (1A each).
  - Short circuit protection for all outputs.
– 4 analog inputs.
  - 10 bit resolution. 1% accuracy.
  - Share 4 of the digital I/O pins (only in owa3x-IP30 models)
  - 0-5.12V (5mV per bit) or 0-30.72V (30mV per bit) configurable by SW.
  - Internal ADCs for Vin, Vbat, Vbackup, temperature.
– Removable cover for SIM, main battery and microSD.
– microSD card holder.
– 3 external RS232 ports. 6 pins configurable by SW as follows:
  - 3 x (TX / RX) or
  - 1 x (TX / RX) & 1 x (TX / RX / CTS / RTS) or
  - 1 x (TX / RX / CTS / RTS / DCD / DTR).
– One RS485 port.
– Ethernet 10/100BaseT *.
– Vout 4.5 V power output (100 mA max).
– GSM / GPRS with FAKRA or SMA antenna connector.
– GPS with FAKRA antenna connector *.
– 4 LEDs for status indication (6 with Ethernet).
– Audio for external microphone and speaker *.
– CAN bus supporting full speed 1MBPS CAN 2.0B *.
– K-line bus *.
– Integrated Sensors
  - Programmable 3 axis accelerometer and or 3 axis gyroscope*.

Availability of features marked with (*) depend on model.
See BOK 100 6006 for more information.

• Power Supply
– Nominal range of 7 V to 48 V.
– Typical consumption at 12V:

Off	0.3 mA
Standby	15 mA
RUN	50 mA
RUN + GSM voice call	90 mA

• Batteries
For when there is no power supply available.
– Standard backup battery for RTC. Duration 10 years.
– Optional rechargeable Li-Ion 3.7V.
  Inserted via rear battery cover.

• Temperature

Storage	-40 ºC to +85 ºC
Operating with GSM off	-40 ºC to +85 ºC
Operating with GSM on	-30 ºC to +80 ºC
Operating from Li-Ion Battery	-20 ºC to +55 ºC
Li-Ion Battery recharge	0 ºC to +45 ºC

• CPU
– ARM9 at 400MHz clock speed.
– Linux OS 2.6.36.
– FLASH 32Mbyte.
– RAM 32Mbyte / 64Mbyte.
– MicroSD card holder for additional storage.

• GSM/GPRS
– GSM850 + EGSM900 + GSM1800 + GSM1900.
– Class 4 (2W) for GSM850/EGSM900.
– Class 1 (1W) for GSM1800/GSM1900.
– GPRS Class B, Class 10 (4&2)
– Audio and CSD Data calls.
– SMS (MT/MO).
– Multiplexed communication supported allowing GSM events and SMS during GPRS connection.

• GNSS
– Receiver: GPS L1 frequency, C/A code
– 56-channel* continuous tracking receiver
– GALILEO L1 open service and GLONASS ready*
– SBAS: WAAS, EGNOS, MSAS, GAGAN
– Update Rate: 4Hz
– Accuracy: 2.5 meters CEP
– Signal Acquisition
  Cold Start: 29 sec*
  Warm Start: 28 sec*
  Hot Start: < 1 sec
– Signal Reacquisition: < 1 sec
– Active Antenna Power Supply: +3.0V @ 30mA

* Features availabilty depending on version

• Mechanical

Aluminium Enclosure
– Environmental protection to IP30 standard.
  (protection against objects larger than 2.5mm and no protection against water).
– Dimensions: 110 x 85 x 40 mm, excluding connectors.
– Weight: 270g
– Connectors:
  GSM & GPS, 24 pin Machine, RJ11 (audio), microSD slot and SIM slot (optional dual SIM slot) Optional RJ45 (ETH) and Optional USB.
– Plastic mounting bracket with screw mounting holes.
  Can also be used for DIN rail mounting. Mounting bracket includes holes to support an optional expansion board.

Rugged Enclosure
– Environmental protection to IP67 standard.
  (full protection against dust and water)
– Dimension: 179,5 x 57,5 x 146,5 mm, excluding connectors.
– Weight: 400g
– Material: Glass reinforced plastic.
– Connectors:
  GSM & GPS, 42 pin Machine.
  Optional ETH connector

• Conformity
– 1999/05/EC R & TTE Directive
– 2004/104/EC Directive
– 2002/95/EC ROHS Directive

• Development Kit
Includes: Developer's board owa3X, Power supply cables, Cables for interfaces, Antennas, Web Access to: Cross Compiler, API´s, Libraries, Manuals and Application Notes.

• Options
– GYROSCOPE – TETRA – Additional I/Os
– BLUETOOTH – WIFI
– SATELLITE – HSPA

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owa3X products

A NEW POWERFUL OPEN M2M PLATFORM SUITABLE FOR THE WIRELESS APPLICATION YOU NEED TO DEVELOP

FEATURES	owa31A	owa31A-Rugged	owa33A	owa33A-Rugged	owa31I
					
PROCCESOR / MHz	ARM9 / 400	ARM9 / 400	ARM9 / 400	ARM9 / 400	ARM9 / 400
LINUX OS	2.6.36	2.6.36	2.6.36	2.6.36	2.6.36
RAM	32MB / 64MB	32MB / 64MB	32MB / 64MB	32MB / 64MB	32MB / 64MB
FLASH	32MB	32MB	32MB	32MB	32MB
MICRO SD CARD	YES	YES	YES	YES	YES
GNSS	u-blox	u-blox	u-blox	u-blox	
GPRS / GSM [1]	GEMALTO	GEMALTO	GEMALTO	GEMALTO	GEMALTO
DIGITAL INPUTS / OUTPUTS	10	10	10	10	10
ANALOG INPUTS [3]	4	4	4	4	4
ODOMETER / PULSE COUNTER	YES	YES	YES	YES	YES
DALLAS IBUTTON [4]			YES	YES	
RS232	3	3	3	3	3
RS485	1	1	1	1	1
ACCELEROMETER	YES	YES	YES	YES	OPTION
CAN	OPTION	OPTION	YES	YES	
KLINE [5]			YES	YES	
AUDIO [2]	YES	YES	YES	YES	OPTION
GSM / GPS CONNECTOR TYPE	FAKRA	FAKRA	FAKRA	FAKRA	SMA (GSM)
INTERNAL ANTENNAS		OPTION		OPTION	
2 USB HOSTS [6]			YES		OPTION
ETHERNET			YES	YES	OPTION
OPTIONAL BATTERY	1800 mAh	1800 mAh	1800 mAh	1800 mAh	1800 mAh
OPTIONAL LONG LIFE BATTERY [7]		4000 mAh		4000 mAh	
PROTECTION	IP30	IP67	IP30	IP67	IP30
OPTIONAL FEATURES					
I/Os EXPANSION BOARD [10]			OPTION		OPTION
2nd CAN			OPTION	OPTION	
2nd KLINE			OPTION	OPTION	
GYROSCOPE			OPTION	OPTION	
BLUETOOTH [8] and/or BLE			OPTION	OPTION	OPTION
WiFi [9]			OPTION	OPTION	OPTION
TETRA [11]			OPTION	OPTION	OPTION
HSPA / UMTS [13]			OPTION	OPTION	OPTION
SATELLITE [12]			OPTION	OPTION	
CODEC [13]	OPTION	OPTION	OPTION	OPTION	OPTION

Notes:

1. Double SIM optional in products for the non-Rugged versions (aluminium enclosure).
2. AUDIO for HSPA/UMTS option requires CODEC.
3. Analog inputs shared with 4 digital I/O pins in non-Rugged models (aluminium enclosure).
4. iButton shared with one digital I/O pin.
5. KLINE shared with one digital I/O pin. KLINE and RS485 are not compatible.
6. Only 1 USB is available with BLE or HSPA options.
7. It is not possible to mount the 2 batteries at the same time.
8. BLUETOOTH option includes 64MB RAM. BLUETOOTH option uses one RX/TX UART (2 RS232 ports available).
9. WiFi option includes 64MB RAM. WIFI units do not have microSD card for the non-rugged (aluminium enclosure) variants .
10. Expansion Board with 16 Digital Inputs (40V max); 2 Analog Outputs 12bits (0-5.12V 1.25mV per bit); 8 Analog Inputs 12 bits (0-5.12V 1.25mV per bit; or 0-30.72V 7.5mV per bit); 4 GND (2 Analog); 2 Vout (4.5V) power outputs 100mA max.
11. TETRA option will use one RX/TX UART, so RS232 ports will be available as 2x (TX/RX).
12. IRIDIUM 9602 Satellite. Option not compatible with Internal Antennas and/or TETRA. IRIDIUM will use one RX/TX UART, so RS232 ports will be available as 2x (TX/RX).
13. CODEC. Analog Input 1 not available when CODEC is present.

***** MORE INFORMATION IN INTEGRATORS MANUAL AND PRODUCT DATA SHEETS *****

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owa3X development kit

A NEW POWERFUL OPEN M2M PLATFORM SUITABLE FOR THE WIRELESS APPLICATION YOU NEED TO DEVELOP

DK OWA3X INCLUDES:

1 Integrated Packages in FS

- Iptables
- OTA support
- Busybox(httpd, telnet...)
- can-utils
- aplay (units with codec)
- XML2,DBUS
- Bluez (units with BT)
- WiFi Tools (units with WiFi)

2 Available Packages

- GSM Network Service
- OpenVPN
- Dropbear
- Sqlite
- SSL
- MQTT library
- TCPDump
- SNMP
- Strace
- ifmetric

3 Developers Zone Access:

- Application notes:
  - IO ➡ owa3x_AN3
  - GPS ➡ owa3x_AN5
  - GSM ➡ owa3x_AN24
  - Low Power ➡ owa3x_AN8
  - Watchdog ➡ owa3x_AN18
- Cross compiler
- owa3x Integrators Manuals (PDF)
- owa3x Programming Reference Manuals
- owa3x Programming Guide (PDF)
- Latest owa3x firmware

4 OWA3X Demo Application

A full-documented, **MQTT** based and highly **Configurable** Demo Application in ANSI C, to report power, I/Os and GPS/GLONAS information through the GSM Network. Demo Server Available.

5 Hardware and Accesories:

- owa3x to DK connection cable (24 ways)
- RS-232 Serial cable (standard) 3m
- RJ11 cable 100mm 6 wire
- GSM Antenna (Fakra)
- GPS Antenna (Fakra)
- Microphone and Speaker
- Developers board – owa3x
- AC/DC Power Supply 230Vac-12Vdc
- Ethernet Cable RJ45

m2m Germany GmbH
Am Kappengraben 18-20
61273 Wehrheim
Tel.: +49 6081 587 3860

www.m2mgermany.de
vertrieb@m2mgermany.de

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owa4X platform

POWERFUL LINUX IoT GATEWAY TO PROCESS DATA COMING FROM WIRED AND WIRELESS SENSORS/DEVICES/PERIPHERALS.

owa4X Core:

– LINUX Kernel 4.14.67
– Debian Distribution File System
– ARM Cortex A8 32 bit 800MHz
– 512MB DDR3
– 1GB NAND Flash
– Access to Debian Standard Repositories
– Able to run C, C++, Java, LUA applications

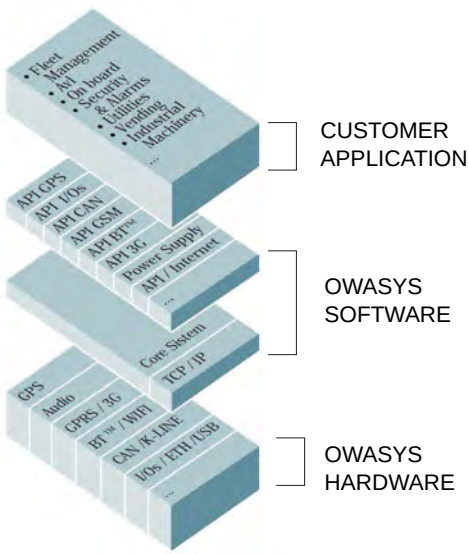
Key Features:

– IP67 Enclosure
– Internal antennas
– CAN (up to 4 interfaces)
– Kline (up to 2 interfaces)
– Global LTE Cat 4
– TPM 2.0
– Programable 9 Axis sensor:
  Accelerometer/Gyroscope/Magnetometer
– Dead reckoning
– Ethernet 100Mbps
– Audio CODEC
– MicroSD
– Micro SIM and Chip SIM available

Wireless Interfaces:

– GNSS (GPS + GLONASS)
– CELULAR COMMUNICATIONS
  – UMTS/HSPA+
  – LTE CAT 4 / 3G / 2G
– WiFi 802.11 a/b/g/n/ac
– BT 4.2

Wireless Embedded Computer



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owa4X platform

TECHNICAL SPECIFICATIONS

• CPU
– ARM Cortex A8 at 800MHz clock speed.
– Linux Kernel 4.14.67
– Debian File System
– NAND FLASH 1GByte.
– DDR3 512MBytes.
– MicroSD card holder for additional storage.

• GNSS
– Receiver: GPS/GLONASS/QZSS/BeiDou.
– 72-channel* continuous tracking receiver.
– GALILEO E1B/C ready.*
– SBAS: WAAS, EGNOS, MSAS, GAGAN.
– Update Rate: 10Hz.
– Accuracy: 2 meters CEP.
– Signal Acquisition:
Cold Start: 26 s.
Hot Start: < 1.5 s.
– Signal Reacquisition: < 1 s.
– Active Antenna Power Supply: +3.0V @ 34mA..
* Features availability depending on version.

• Rugged enclosure
– Environmental protection to IP67 standard.
(full protection against dust and water).
– Dimension: L=149 x W=135 x H=58 mm)
– Weight: 385g
– Material: Glass reinforced polyester.
– System connectors: TE 776163-1 (35 pins)
– MicroSIM
– MicroSD

• Interfaces
– Up to 4 CAN bus
– 2 CAN bus supporting full speed 1Mbps CAN 2.0B.
– 2 CAN FD supporting 8Mbps. (Only with Global LTE option)
– Up to 2 K-line bus.
– Integrated sensors.
- Programmable 9 axis sensor, accelerometer, gyroscope and magnetometer.
– TPM 2.0 (Only with Global LTE option)
– 10 configurable digital input/outputs:
- 50V max inputs (logic low <1.5V, high >3V).
- All inputs function as wake signals for low power modes.
- All inputs can be used as counters (odometer). 32bit, 3Khz max.
- 8 open collector outputs (100mA each).
- 2 high-side switches to Vin for output (1A each).
- Short-circuit protection for all outputs.
– 4 analog inputs:
- 12 bit resolution, 1% accuracy.
- 2 Share digital I/O pins and 2 dedicated pins.
- 0-5.12V (5mV per bit) or 0-30.72V (30mV per bit) configurable by sw.
– Maxim 1wire
– microSD card holder.
– USB Host 2.0.
– 3 external RS232 ports. 6 pins configurable by SW as follows:
- 3 x (TX/RX) or
- 1 x (TX/RX) & 1 x (TX/RX/CTS/RTS) or
- 1 x (TX/RX/CTS/RTS/DCD/DTR)
– One RS485 port.
– Ethernet 10/100 BaseT.
– Vout 5V power output (500 mA max).
– FAKRA antenna connectors.
– 4 LEDs for status indication.
– Audio CODEC for external microphone and speaker.
* Availability of features depends on models.

• POWER SUPPLY
– UMTS/HSPA + Version:
Nominal range of 9 V to 48 V.
– Global LTE Version:
Nominal range of 9 V to 36 V
– Typical consumption at 24V:

OFF	0.335 mA
Standby	9.88 mA
RUN	47 mA
RUN + GSM + GPS	73 mA

• Batteries
Back-up when there is no power supply available.
– Standard backup battery for RTC. Duration 10 years.
– Optional rechargeable Li-Ion 3.7V.
Inserted via rear battery cover.

• Temperature

Storage	-40 ºC to +85 ºC
Operating	-40 ºC to +85 ºC
Operating from Li-Ion Battery	-20 ºC to +60 ºC
Li-Ion Battery recharge	0 ºC to +45 ºC

• UMTS/HSPA+
– GSM/GPRS/EDGE: Quad band 850/900/1800/1900MHz.
– UMTS/HSPA+: Five band 800/850/900/1900/2100MHz.
– DL 7.2Mbps, UL 5.7Mbps
– GPRS Class B, Class 12 (4&4).
– EDGE Multislot Class 12.
– Audio and CSD Data calls.
– SMS (MT/MO).

• LTE Cat 4 / 3G / 2G (Option)
– LTE FDD B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28
– LTE TDD B38/B39/B40/B41
– UMTS B1/B2/B4/B5/B6/B8/B19
– GSM 850/900/1800/1900MHz

– LTE-FDD: Max 150Mbps (DL), Max 50Mbps (UL)
– LTE-TDD: Max 130Mbps (DL), Max 30Mbps (UL)

• Development Kit
Includes: Developer's board owa4X, power supply cables, cables for interfaces, antennas, web access to: cross compiler, API´s, libraries, manuals and application notes.

• Options
See DESI-BOK 100 9001 for product variants and options.

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