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

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

OWASYS HARDWARE

OWASYS SOFTWARE

CUSTOMER APPLICATION

www.m2mgermany.de
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.
  - 8 open collector outputs (100mA each).
  - 2 high-side switches to Vin for output (1A each).
  - 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 4.5V 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 *.

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

• 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 GMS 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

• Mechanical
  - Aluminium Enclosure
    - Environmental protection to IP30 standard.
    - 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.
  - Rugged Enclosure
    - Environmental protection to IP67 standard.
    - Dimensions: 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
### FEATURES

<table>
<thead>
<tr>
<th>Feature</th>
<th>owa31A</th>
<th>owa31A-Rugged</th>
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### OPTIONAL FEATURES

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**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 (64V max); 2 Analog Outputs 12bits (0-5.12V 1.25mV per bit); 2 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 (RX/TX).
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 (RX/TX).
13. Codec: Analog input 1 not available when Codec is present.

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

da3X products

A NEW POWERFUL OPEN M2M PLATFORM SUITABLE FOR THE WIRELESS APPLICATION YOU NEED TO DEVELOP
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 Accessories:
   - 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
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)
- CELLULAR COMMUNICATIONS
  - UMTS/HSPA+
  - LTE CAT 4 / 3G / 2G
  - WiFi 802.11 a/b/g/n/ac
  - BT 4.2
**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:
  - 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/DTI)
- 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
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