owa344l

Implement a telemetry system that allows you to have remote access to your machines from a single point of control

IoT Embedded Linux Platform

owa344l Core:

– Linux Kernel 6.6.15
– Yocto Kirkstone 4.0 File System
– ARM Cortex A7 32 bit 792MHz
– 512MB DDR3
– 512MB NAND Flash
– Optional 8GB EMMC

Key Features:

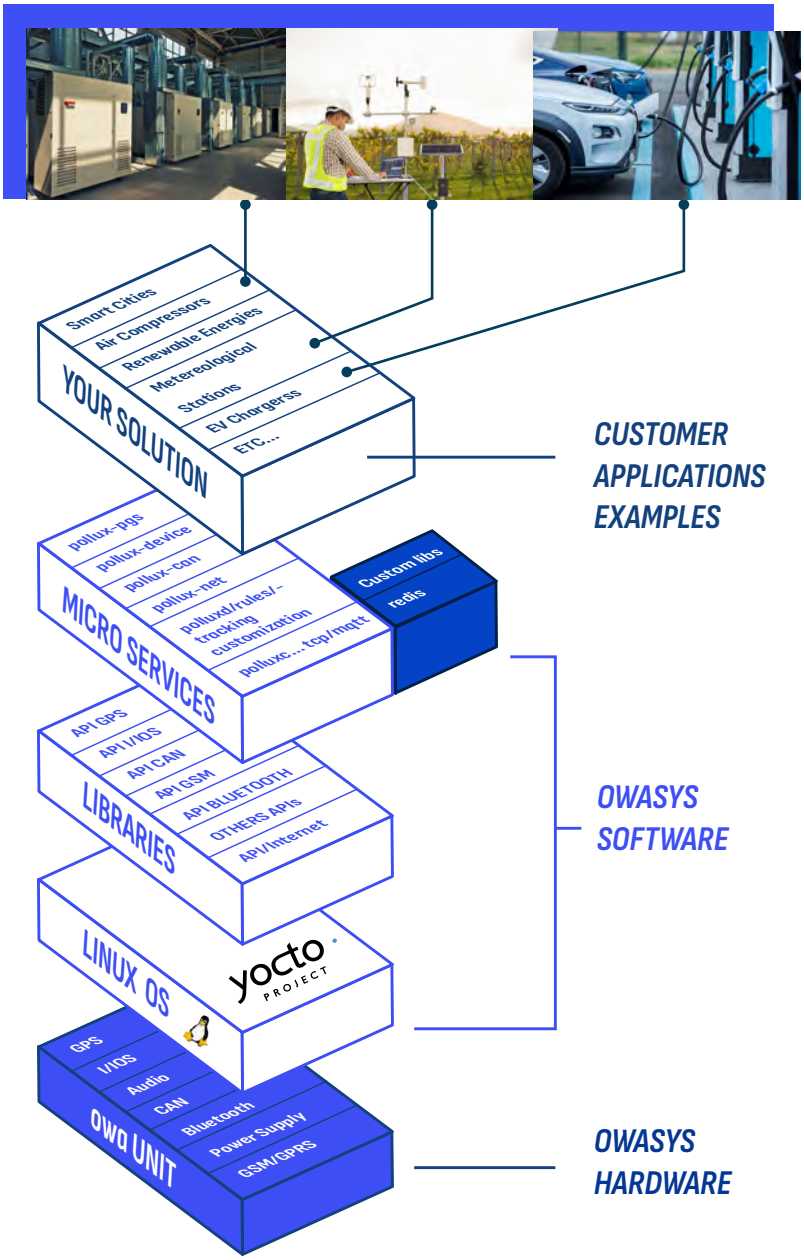
– 2 Ethernet 10/100Mbps - RJ45
– RS485 (up to 2 interfaces)
– USB 2.0
– 2 RS232 (TX, RX) interface
– 6 digital output open drain 200mA.
– 2 digital output high side 1A.
– 9 digital input 0 to 50V.
– 4 analog input, 0V to 30V.
– 5V voltage output
– Nano SIM or MFF2
– Low Power Modes
– TPM 2.0 (Optional)
– Secure boot
– IP40 Enclosure

Wireless Interfaces:

CELLULAR COMMUNICATIONS
– LTE Cat 1 bis with 2G fallback
– EXTERNAL ANTENNA SMA CONNECTOR

Mechanics

– IP40
– 114mm x 85mm x 32mm (excluding DIN Rail Fixing)



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TECHNICAL SPECIFICATIONS

CPU

– ARM Cortex A7 at 792MHz clock speed.
– Linux Kernel 6.6.15
– Yocto Kirkstone File System
– DDR3 512MB RAM
– NAND FLASH 512MB
– Optional EMMC 8GB for additional storage
– Optional TPM 2.0

LTE Cat 1 bis with 2G fallback

– LTE-FDD bands: B1/B2/B3/B4/B5/B7/B8/B12/B13/B17/B18/B19/B20/B25/B26/B28/B66
– LTE-TDD bands: B34/B38/B39/B40/B41
– GSM/GPRS/EDGE: Quad band
– DL 10M bps, UL 5 Mbps
– GPRS multi-slot Class 12.
– LTE-TDD: Max 130 Mbps (DL), Max 30 Mbps (UL)

Interfaces

Two Ethernet 10/100Base-TX.

– Up to two RS485 port
– 2 external RS232 ports. 6 pins:
  - 1 x (TX/RX/CTS/RTS) Console
  - 1 x (TX/RX)
– Maxim 1-Wire
– USB Host 2.0
– Configurable digital input/outputs:
  - 9 INPUTS:
    - 50V max inputs (logic low <1.5V, high >3V).
    - 7 inputs function as wake signals for low power modes
  - All inputs can be used as counters (odometer). 32bit, 3Khz max.
  - 6 open collector outputs (200mA 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
  - Multiplexed with digital I/O pins
  - 0-30V range
– Vout 5V power output (500mA max)
– SMA antenna connector
– 4 LEDs for status indication

* Availability of features depends on models

Options

See DESI-BOK 000 3012 for product variants and options.

Power Supply:

– Nominal range of 9V to 48V.
– Typical consumption at 24V:

OFF	320 uA
Standby	9,53 mA
RUN + ETH0 + ETH1	50,50 mA
RUN + GSM + ETH0 + ETH1	68,10 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

Safety Purposes Operating Temperature Range without Li-ion Battery	-40 °C to +73 °C*
Safety Purposes Operating Temperature Range with Li-ion Battery	-40 °C to +53 °C (from external power supply) -20 °C to +53 °C (battery can power the unit)** 0 °C to +45 °C (battery will be charged if external power available)

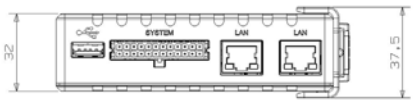
* Industrial temperature range components -40 °C to 85 °C
** (-40 °C to -20 °C internally limited with battery protecton during discharge)

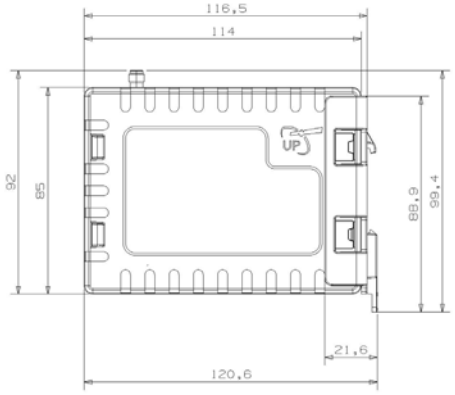
Enclosure

– Environmental protection to IP40 standard
– Dimension: L=120,60 x W=85 x H=32 mm. (With the DIN Rail fixing)
– Weight: 175 gr.
– Material: PC+ABS
– System connectors: Molex Microfit 24 way 43045-2400
– NanoSIM
– 2 Ethernet RJ45

Development Kit (POP 000 3100#UDK)

Includes: Developer's board owa344, power supply cables, cables for interfaces, antennas, web access to developers area: cross compiler, API, libraries, manuals and application notes.





owa344A

Make sure each unit is working at the highest level.
Be the co-pilot of all your vehicles.

IoT Embedded Linux Platform

owa344A Core:

– Linux Kernel 6.6.15
– Yocto Kirkstone 4.0 File System
– ARM Cortex A7 32 bit 792MHz
– 512MB DDR3
– 512MB NAND Flash
– Optional 8GB EMMC

Key Features:

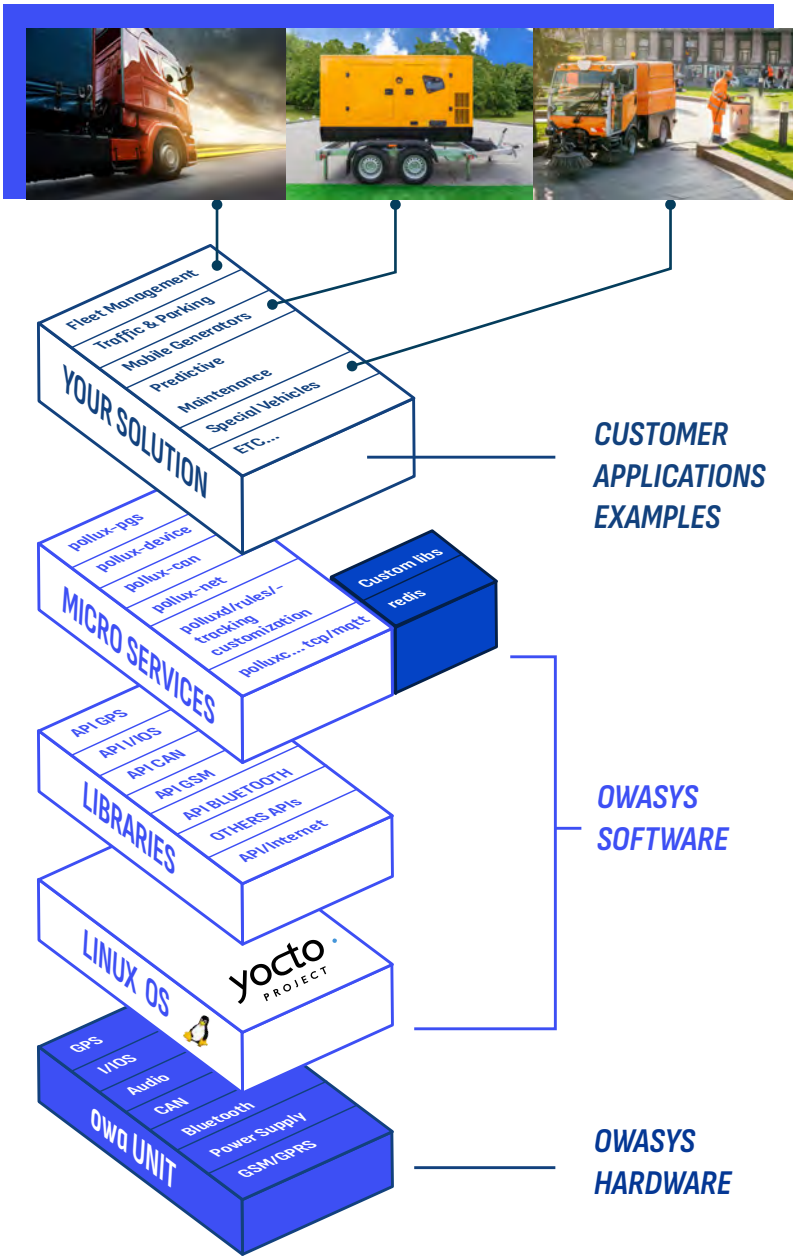
– CAN (up to 2 interfaces)
– Kline
– Ethernet 10/100Mbps - RJ45
– USB 2.0
– 2 RS232 interface
– Programable 3 Axis Accelerometer
– 6 digital output open drain 200mA
– 2 digital output high side 1A
– 9 digital input 0 to 50V
– 4 analog input, 0V to 30V
– 5V voltage output
– Nano SIM/MFF2
– Low Power Modes
– TPM 2.0 (Optional)
– Secure boot
– IP40 Enclosure

Wireless Interfaces:

– GNSS (GPS+GLONASS+GALILEO+BDS+QZSS)
– CELLULAR COMMUNICATIONS
– LTE Cat 1 bis with 2G fallback
– EXTERNAL ANTENNAS (FAKRA)
– OPTIONAL INTERNAL ANTENNAS

Mechanics

– IP40
– 114mm x 85mm x 32mm (excluding wings)



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owa344A

TECHNICAL SPECIFICATIONS

CPU

– ARM Cortex A7 at 792MHz clock speed.
– Linux Kernel 6.6.15
– Yocto Kirkstone File System
– DDR3 512MB RAM
– NAND FLASH 512MB
– Optional EMMC 8GB for additional storage
– Optional TPM 2.0

GNSS

– Receiver: GPS/GLONASS/GALILEO/QZSS/BDS
– 33-channel continuous tracking receiver
– SBAS: WAAS, EGNOS, MSAS, GAGAN
– Update Rate: up to 10Hz.
– Accuracy: <2.5 meters CEP.
– Signal Acquisition:
  Cold Start: 32 s.
  Hot Start: < 2 s.
– Sensitivity:
  -167dbm tracking,
  -149dBm adquisition
– Active Antenna Power Supply: +3.3V

LTE Cat 1 bis with 2G fallback

– LTE-FDD bands: B1/B2/B3/B4/B5/B7/B8/B12/B13/B17/B18/B19/B20/B25/B26/B28/B66
– LTE-TDD bands: B34/B38/B39/B40/B41
– GSM/GPRS/EDGE: Quad band
– DL 10M bps, UL 5 Mbps
– GPRS multi-slot Class 12.
– LTE-TDD: Max 130 Mbps (DL), Max 30 Mbps (UL)

Interfaces

– Up to 2 CAN bus supporting full speed 1Mbps CAN 2.0B
– K-line bus
– Ethernet 10/100Base-TX
– Maxim 1-Wire
– USB Host 2.0
– 2 external RS232 ports. 6 pins:
  - 1 x (TX/RX/CTS/RTS) Console
  - 1 x (TX/RX)
– Integrated sensors
  - Programmable 3 axis sensor, accelerometer
– Configurable digital input/outputs:
  - 9 INPUTS:
    - 50V max inputs (logic low <1.5V, high >3V)
    - 7 inputs function as wake signals for low power modes
  - All inputs can be used as counters (odometer). 32bit, 3Khz max.
  - 6 open collector outputs (200mA 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
  - Multiplexed with digital I/O pins
  - 0-30V range
– Vout 5V power output (500mA max)
– FAKRA antenna connectors or internal antennas
– 4 LEDs for status indication

* Availability of features depends on models

Power Supply:

– Nominal range of 9V to 48V.
– Typical consumption at 24V:

OFF	320 uA
Standby	9,53 mA
RUN	35,50 mA
RUN + GSM + GPS	59,30 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

Safety Purposes Operating Temperature Range without Li-ion Battery	-40 °C to +73 °C*
Safety Purposes Operating Temperature Range with Li-ion Battery	-40 °C to +53 °C (from external power supply) -20 °C to +53 °C (battery can power the unit)** 0 °C to +45 °C (battery will be charged if external power available)

* Industrial temperature range components -40 °C to 85 °C
** (-40 °C to -20 °C internally limited with battery protecton during discharge)

Enclosure

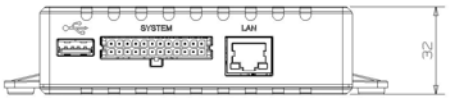
– Environmental protection to IP40 standard.
– Dimension: L=140 x W=85 x H=32 mm. (With the fixing wings)
– Weight: 170 gr.
– Material: PC+ABS.
– System connectors: Molex Microfit 24 way 43045-2400
– NanoSIM
– Ethernet RJ45

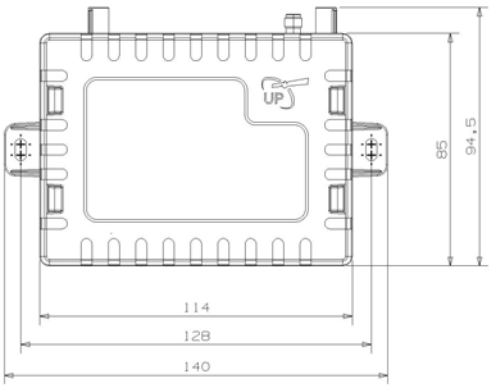
Development Kit (POP 000 3100#UDK)

Includes: Developer's board owa344, power supply cables, cables for interfaces, antennas, web access to developers area: cross compiler, API, libraries, manuals and application notes.

Options

See DESI-BOK 000 3012 for product variants and options.





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owa344

Product Variants

FEATURES	owa344A	owa344I
		
Processor/MHz	ARM Cortex A7 32-bit 792MHz	ARM Cortex A7 32-bit 792MHz
Yocto / Linux OS	Yocto Kirkstone 4.0 / Kernel 6.6.15	Yocto Kirkstone 4.0 / Kernel 6.6.15
RAM	512MB DDR3	512MB DDR3
FLASH	512MB NAND Flash	512MB NAND Flash
GNSS	YES	
LTE Cat 1 bis	YES	YES
DIGITAL OPEN-DRAIN OUTPUT	6	6
DIGITAL HIGH SIDE OUTPUT [6]	2	2
DIGITAL INPUT [1 2 5]	9	9
ANALOG INPUTS [1]	4	4
RS232 [4]	2	2
ACCELEROMETER	3-axis	
CAN 1	YES	
KLINE [3 7]	YES	
RS485		YES
USB 2.0	YES	YES
ETHERNET	YES	YES
2nd ETHERNET		YES
ANTENNA CONNECTOR	FAKRA	SMA
ENCLOSURE	SCREW MOUNT	DIN RAIL

OPTIONAL FEATURES		
CAN 2 [2]	OPTIONAL	
2ND RS485 [4 7]		OPTIONAL
8GB EMMC	OPTIONAL	OPTIONAL
TPM 2.0	OPTIONAL	OPTIONAL
INTERNAL ANTENNAS	OPTIONAL	
OPTIONAL BATTERY 2000mAh	OPTIONAL	OPTIONAL
HART [8]		OPTIONAL
CURRENT METER [9]		OPTIONAL

Notes:
1. Analog Inputs are multiplexed in the main connector with DIOs (DIN0/AIN0 - DIO1/AIN1 - DIO2/AIN2 - DIO3/AIN3).
2. CAN2 is multiplexed with DIO_2 and DIO_4, devices with CAN2 will not mount DIO_2 and DIO_4.
3. When Kline is enabled, RS-485 is disabled (SW Selected). 2nd RS485 is incompatible with Kline.
4. 2nd RS-485 is multiplexed with 2nd RS-232.
5. iButton is multiplexed with DIO_6 and can't be used both simultaneously.
6. High Side I/Os are multiplexed with the Current Meter, cannot work simultaneously. iButton not compatible with DIO6.
7. Kline is multiplexed with the 2nd RS-485, cannot work simultaneously.
8. HART is multiplexed with DIO3/AIN3.
9. Current Meter is multiplexed with High-Side 8 and 9.

owa450

The Perfect Platform for controlling and monitoring your industrial Mahcines and Vehicles

Global LTE & ITXPT IoT Gateway

owa450 Core:

– LINUX Kernel 4.19.94
– Debian 10 Distribution File System
– ARM Cortex A8 32 bit 800MHz
– 512MB DDR3 (Up to 1 GB)
– 1GB NAND Flash (Up to 2 GB)
– Access to Debian Standard Repositories
– Able to run C/C++, Python, Java, LUA apps

Key Features:

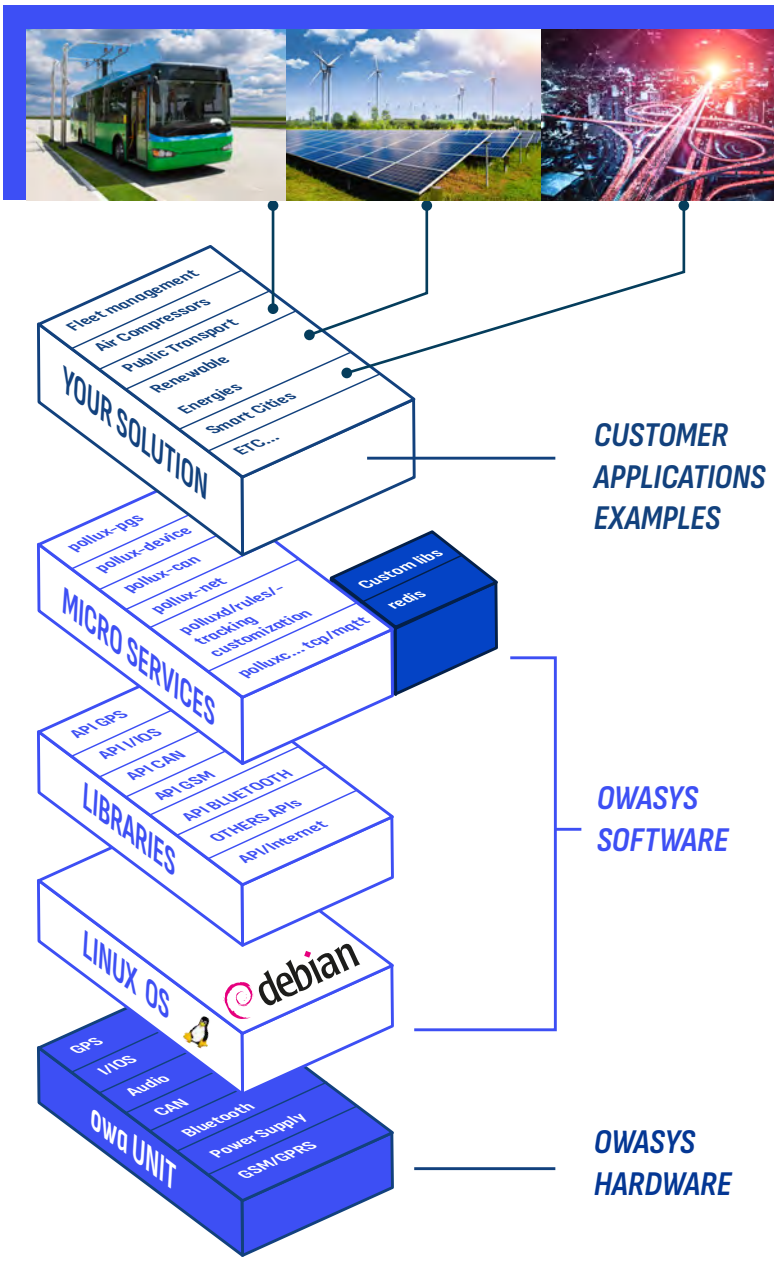
– IP40 Enclosure
– CAN (up to 4 interfaces)
– Kline (up to 2 interfaces)
– RS485 (up to 2 interfaces)
– Programable 3 Axis Accelerometer
– TPM 2.0
– 8 digital output open drain 200mA.
– 2 digital output high side 1A.
– 10 digital input 0 to 50V.
– 3 additonal optional digital input.
– 4 analog input, 0 to 5,12V or 0 to 30,72V
– 5V voltage output
– 3 RS232 (TX, RX) interface
– Ethernet 10/100Mbps
  - RJ45 or M12 connector
– MicroSD
– Micro SIM
– USB 2.0
– Programmable 9 Axis sensor (optional)
  - Accelerometer/Gyroscope/Magnetometer.

Wireless Interfaces:

– Concurrent reception of up to 3 GNSS
  GPS, GLONASS, GALILEO, BeiDou
  Dead Reckoning options
– CELLULAR COMMUNICATIONS
– LTE Cat 1 with 3G and 2G fallback
– Region: Global (Worldwide)
– WiFi 802.11 a/b/g/n/ac
– BT 4.2

Mechanics

– IP40
– 150mm x 94mm x 32mm



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TECHNICAL SPECIFICATIONS

CPU

– ARM Cortex A8 at 800MHz clock speed.
– Linux Kernel 4.19.94
– Debian 10 File System
– NAND FLASH 1GB (Up to 2 GB)
– DDR3 512MB (Up to 1 GB)
– MicroSD card holder for additional storage.

GNSS

– Receiver: GPS/GLONASS/GALILEO/QZSS/BeiDou.
– 72-channel continuous tracking receiver.
– SBAS: WAAS, EGNOS, MSAS, GAGAN.
– Update Rate: up to 10Hz.
– Accuracy: 2 meters CEP.
– Signal Acquisition:
Cold Start: 26 s.
Hot Start: < 1.5 s.
– Signal Reacquisition: < 1 s.
– Active Antenna Power Supply: +3.3V
** Features availability depending on version.*

Interfaces

– Up to 4 CAN bus
  – 2 CAN bus supporting full speed 1Mbps CAN 2.0B.
  – 2 CAN FD supporting 8Mbps
– Up to 2 K-line bus.
– Integrated sensors.
  - Programmable 9 axis sensor, accelerometer, gyroscope and magnetometer.
– TPM 2.0
  – 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 (200mA each).
  - 2 high-side switches to Vin for output (1A each)
  - Short-circuit protection for all outputs
– Optional 3 extra digital inputs in expansion connector
– 4 analog inputs:
  - 12 bit resolution, 1% accuracy.
  - Multiplexed with digital I/O pins.
  - 0-5.12V (5mV per bit) or 0-30.72V (30mV per bit) configurable by SW
– Maxim 1-Wire.
– 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)
– Up to two RS485 port.
– Ethernet 10/100Base-TX
– Vout 5V power output (500mA max).
– FAKRA antenna connectors
– 4 LEDs for status indication
– Audio CODEC for external microphone and speaker
** Availability of features depends on models*

Power Supply:

– Nominal range of 9V to 48V.
– 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.

Safety Purposes Operating Temperature Range without Li-ion Battery	-40 °C to +75 °C*
Safety Purposes Operating Temperature Range with Li-ion Battery	-40 °C to +55 °C (from external power supply) -20 °C to +55 °C (battery can power the unit) 0 °C to +45 °C (battery will be charged if external power available)

** Industrial temperature range components -40 °C to 85 °C*

• LTE Cat 1 with UMTS/HSPA and GSM fallback
– DL 10.2Mbps, UL 5.2Mbps
– GPRS Class B, Class 12 (4&4).
– No standard voice calls support, calls must be done using a SIP client.
owa450(P):
– LTE Cat 1 bands:1, 2, 3, 4, 5, 7, 8, 12, 13, 18, 19, 20, 26, 28, 66
– UMTS/HSPA+ bands: 1, 2, 3, 4, 5, 6, 8, 19
– GSM/GPRS/EDGE: Quad band

Enclosure

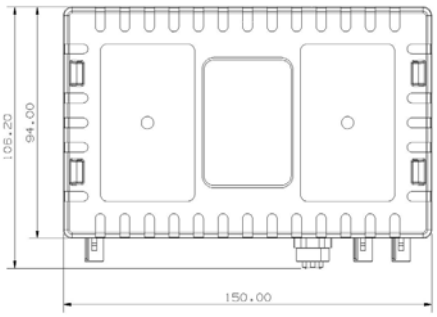
– Environmental protection to IP40 standard.
(protection against dust).
– Dimension: L=150 x W=94 x H=32 mm)
– Weight: 254g
– Material: PC+ABS.
– System connectors: Molex Microfit 24 way 43045-2400
– MicroSIM
– MicroSD
– Ethernet RJ45 or M12

Development Kit

Includes: Developer's board owa450, power supply cables, cables for interfaces, speaker, microphone, antennas, web access to: cross compiler, API, libraries, manuals and application notes.

Options

See DESI-BOK 100 9108 for product variants and options



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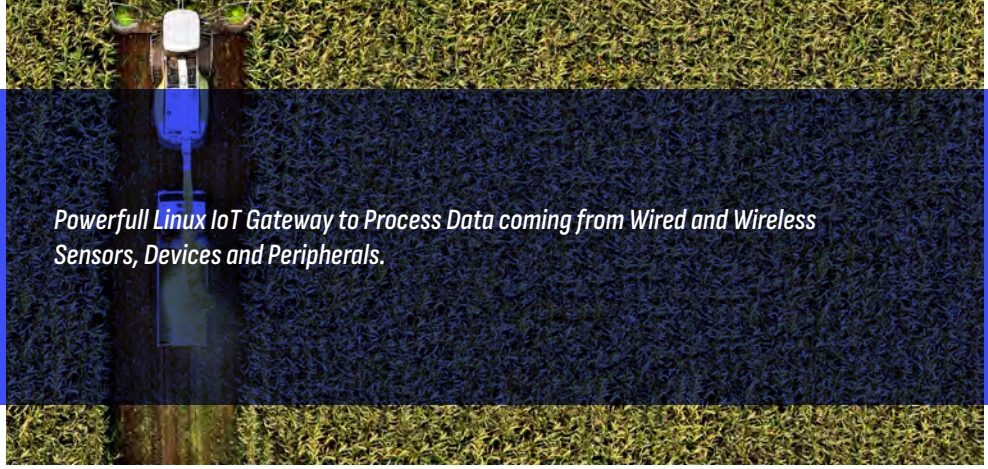
Product Variants

FEATURES	owa450A	owa450A+	owa450I
			
Processor/MHz	Cortex A8/800MHz	Cortex A8/800MHz	Cortex A8/800MHz
Linux OS	4.19.94 (Debian 10)	4.19.94 (Debian 10)	4.19.94 (Debian 10)
RAM	512MB DDR3 (Up to 1 GB)	512MB DDR3 (Up to 1 GB)	512MB DDR3 (Up to 1 GB)
FLASH	1GB NAND SLC (Up to 2 GB)	1GB NAND SLC (Up to 2 GB)	1GB NAND SLC (Up to 2 GB)
MICRO SD	YES	YES	YES
ACCELEROMETER	YES	YES	OPTIONAL
GNSS	YES	YES	
LTE CAT1 GLOBAL	YES	YES	YES
DIGITAL I/O [1 2 3 4 8]	10	8	10
EXPANSION DIGITAL INPUTS		3	
ANALOG INPUTS [1]	4	4	4
IBUTTON [2]	YES	YES	YES
RS232	3	3	3
RS485	YES	YES	YES
CAN	YES	YES	OPTIONAL
CAN 2 [4]	OPTIONAL	YES	
CAN 3 [6]		YES	
CAN 4 [5 6]		YES	
KLINE [3 8]	YES	YES	
AUDIO CODEC		OPTIONAL	
USB	YES	YES	YES
ETHERNET	RJ45 (M12 OPTIONAL)	RJ45 (M12 OPTIONAL)	RJ45
ANTENNA CONNECTOR	FAKRA	FAKRA	SMA
INTERFACES CONNECTOR	24 PIN	24 PIN & 14 PIN EXT	24 PIN

OPTIONAL FEATURES			
WIFI + BT4.2	OPTIONAL	OPTIONAL	OPTIONAL
KLINE 2 [3, 8]	OPTIONAL	OPTIONAL	
9 AXIS MEMS (ACC+GYRO+MAG)[5]	OPTIONAL	OPTIONAL	
2nd RS485 [7 8]		OPTIONAL	OPTIONAL
TPM 2.0	OPTIONAL	OPTIONAL	OPTIONAL
OPTIONAL BATTERY 2000mAh	OPTIONAL	OPTIONAL	OPTIONAL
MFF2 SIM CARD	OPTIONAL	OPTIONAL	OPTIONAL

Notes:
1. Analog inputs shared with Digital I/O pins 0 to 3
2. iButton multiplexed with DIO6
3. KLINE shared pin with DIO-7. RS485 and KLINEs cannot work at the same time (SW selected). 2nd KLINE will share pin with DIO-5 and remove UART 1 TXD1/RXD1
4. CAN 2 removes DIO-2 and DIO-4
5. CAN4 not compatible with 9 Axis MEMs
6. CAN3 and CAN4 support CAN FD from revision R1B
7. 2nd RS485 in OWA450A+ removes UART5.
8. In the OWA450I, if the 2nd RS485 is in the main connector it will remove UART5, DIO5/Kline2 and DIO7/Kline1. If it is in the expansion connector, it will remove UART5.

owa4X



Powerfull Linux IoT Gateway to Process Data coming from Wired and Wireless Sensors, Devices and Peripherals.

Cortex A8 IoT Open Linux Gateway (IP67)

owa4X Core:

– LINUX Kernel 4.19.94
– Debian 10 Distribution File System
– ARM Cortex A8 32 bit 800MHz
– 512MB DDR3 (Up to 1 GB)
– 1GB NAND Flash (Up to 2 GB)
– Access to Debian Standard Repositories
– Able to run C/C++, Python, Java, LUA apps

Key Features:

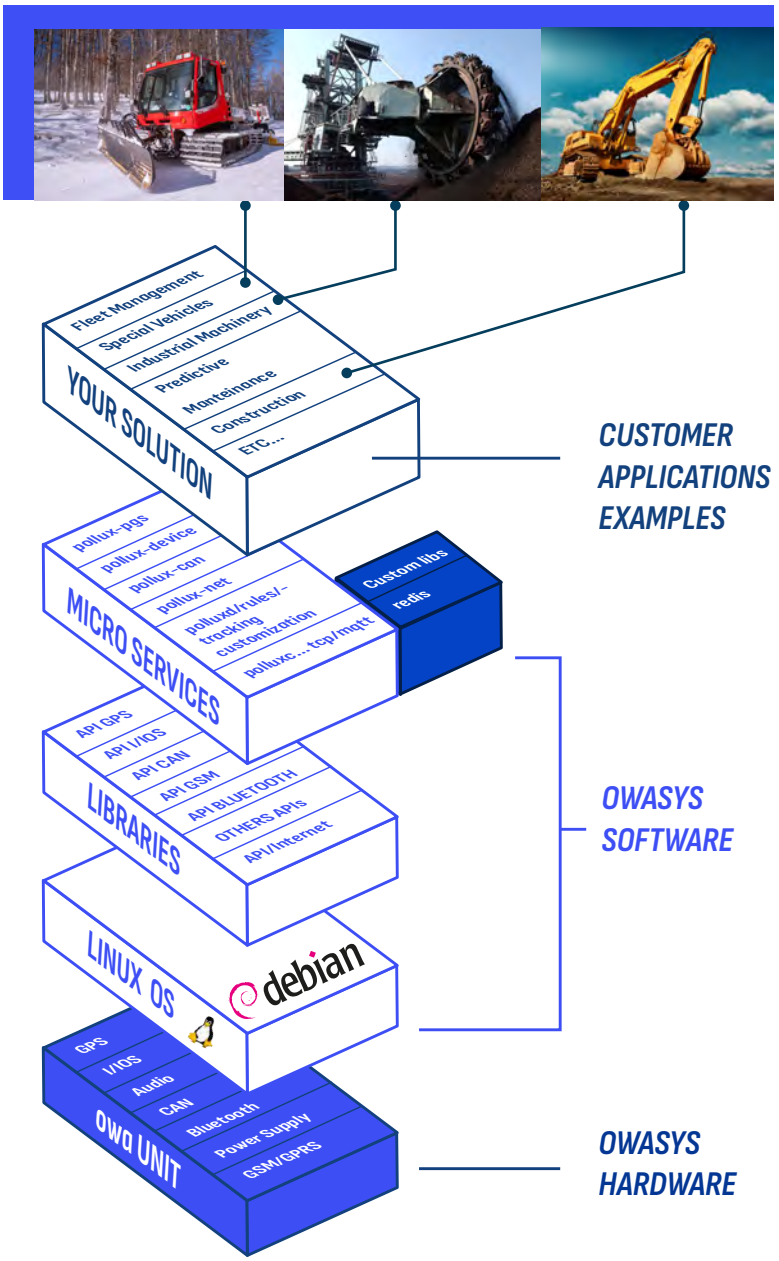
– IP67 Enclosure
– CAN (up to 4 interfaces)
– Kline (up to 2 interfaces)
– Global LTE Cat 4
– TPM 2.0
– Programable 9 Axis sensor: Accelerometer/Gyroscope/Magnetometer
– Dead reckoning (Optional)
– Ethernet 10/100Mbps
– Audio CODEC
– MicroSD
– Micro SIM and MFF2 SIM available

Wireless Interfaces:

– Concurrent reception of up to 3 GNSS
GPS, GLONASS, GALILEO, BeiDou
Dead Reckoning options
– CELULAR COMMUNICATIONS
– UMTS/HSPA+
– LTE CAT 4 / 3G / 2G
– WiFi 802.11 a/b/g/n/ac (Internal antenna)
– BT 4.2 (Internal antenna)

Mechanics

– IP67
– L=149 x W=135 x H=58 mm



owa4X

TECHNICAL SPECIFICATIONS

CPU
– ARM Cortex A8 at 800MHz clock speed.
– Linux Kernel 4.19.94
– Debian 10 File System
– NAND FLASH 1GB (Up to 2 GB)
– DDR3 512MB (Up to 1 GB)
– 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.*

Interfaces
– Up to 4 CAN bus
  – 2 CAN bus supporting full speed 1Mbps CAN 2.0B.
  – 2 CAN FD supporting 8Mbps.
– Up to 2 K-line bus.
– Integrated sensors.
  - Programmable 9 axis sensor, accelerometer, gyroscope and magnetometer.
– TPM 2.0
– 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 (200mA 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.
  - 1 Share digital I/O pins and 3 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 10/100Base-TX
– 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:
– Nominal range of 9V to 36V.
– 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

Safety Purposes Operating Temperature Range without Li-ion Battery	-40 °C to +65 °C*
Safety Purposes Operating Temperature Range with Li-ion Battery	-40 °C to +55 °C (from external power supply) -20 °C to +55 °C (battery can power the unit) 0 °C to +45 °C (battery will be charged if external power available)

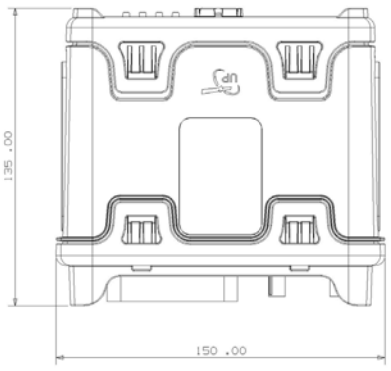
* Industrial temperature range components -40 °C to 85 °C

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)

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

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

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



owa4X

Product Variants

FEATURES	owa41A	owa43A	owa44A
			
Processor/MHz	Cortex A8/800MHz	Cortex A8/800MHz	Cortex A8/800MHz
Linux OS	4.19.94 (Debian 10)	4.19.94 (Debian 10)	4.19.94 (Debian 10)
RAM	512MB DDR3 (Up to 1 GB)	512MB DDR3 (Up to 1 GB)	512MB DDR3 (Up to 1 GB)
FLASH	1GB NAND SLC (Up to 2 GB)	1GB NAND SLC (Up to 2 GB)	1GB NAND SLC (Up to 2 GB)
MICRO SD	YES	YES	YES
ACCELEROMETER	YES	YES	OPTIONAL
GNSS	YES	YES	YES
LTE CAT1 GLOBAL	YES	YES	YES
DIGITAL I/O	10	10	6
ANALOG INPUTS [1]	4	4	4
IBUTTON [2]	YES	YES	YES
RS232	3	3	2
RS485	NO	YES	YES
CAN	YES	YES	YES
CAN 2	NO	YES	YES
CAN 3 [3]	NO	OPTIONAL	YES
CAN 4 [4]	NO	OPTIONAL	YES
KLINE [5]	YES	YES	YES
KLINE 2 [5]	NO	OPTIONAL	YES
AUDIO CODEC	NO	OPTIONAL	YES
USB [7]	NO	YES	YES
ETHERNET	YES	YES	YES
ANTENNA CONNECTOR	FAKRA	FAKRA	FAKRA

OPTIONAL FEATURES			
WIFI + BT4.2	NO	OPTIONAL	OPTIONAL
TPM 2.0	OPTIONAL	OPTIONAL	OPTIONAL
9 AXIS MEMS (ACC+GYRO+MAG)[6]	NO	OPTIONAL	OPTIONAL
USB 2 [7]	NO	OPTIONAL	OPTIONAL
OPTIONAL BATTERY 3350mAh	OPTIONAL	OPTIONAL	OPTIONAL
OPTIONAL BATTERY 13400mAh	OPTIONAL	OPTIONAL	OPTIONAL
IP67 [7]	OPTIONAL	OPTIONAL	OPTIONAL
MFF2 SIM CARD	OPTIONAL	OPTIONAL	OPTIONAL

Notes:
1. Analog input 1 is multiplexed with DIO1
2. iButton multiplexed with DIO6
3. CAN3 not compatible with DIO2 and DIO3.
4.CAN4 not compatible with DIO4 and DIO5 and 9 Axis MEMs.
5. Kline and RS485 cannot work at the same time (SW selected).
Kline 2 is incompatible with 1st RS232 and is multiplexed with DIO7
6. 9 Axis MEMS incompatible with CAN 4.
7. USB connector no external access with IP67 cover

owa 5X

Quad core open linux IoT computer for the most demanding edge computing solutions

Wireless Embedded Computer

owa5X Core:

– i.MX8 M Plus Quad A53 64 bit
– Core frequency 1.6GHz
– Neural Processing Unit (NPU) (Optional) up to 2.3 TOPS
- GPU (Optional)
  OpenVG 1.1, G2D, OpenGL® ES 3.1 Vulkan®, OpenCL™ 1.2 FP
– 2GB LPDDR4 (Up to 4 GB)
– 1GB NAND Flash SLC
– 8GB EMMC Flash (Up to 32 GB)
– Linux kernel 5.10.72
– Debian Distribution File System or Yocto Kirkstone Based Distribution
– Access to Debian Standard Repositories
– Able to run C, C++, Java, Python applications
– Secure: HAB (High Assurance Boot) and TPM 2.0

Key features

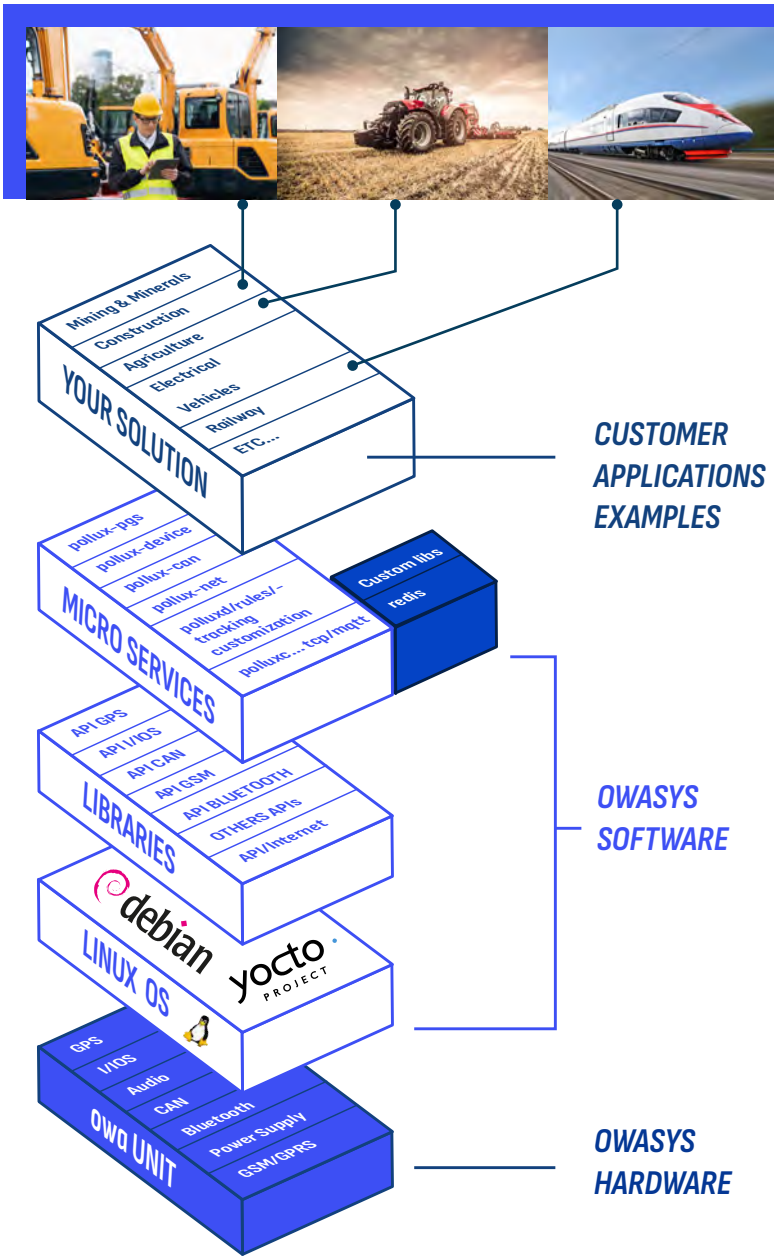
– HAB - High Assurance Boot
– TPM 2.0
– IP67/ IP6K9K Enclosure
– Global LTE Cat 4
– CAN (up to 4 interfaces)
– Programable 6 Axis sensor: Accelerometer/Gyroscope
– Optional Dead reckoning
– 10/100BASE-T1 IEEE802.3bw (SPE) or 10/100BASE-TX
– MicroSD
– miniSIM and MFF2 SIM available

Wireless Interfaces:

- Concurrent reception of up to 3 GNSS, GPS, GLONASS, GALILEO, BeiDou Dead Reckoning options
– Global LTE Cat 4 with 3G/2G fallback
– WiFi 802.11ac Simultaneous access point (AP) & station (STA)
– Dual mode Bluetooth 5.2 Bluetooth BR/EDR and Low Energy

Mechanics

- IP67 / IP6K9K
- L=154 x W=188 x H=62 mm



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TECHNICAL SPECIFICATIONS

CPU

– i.MX8 M Plus Quad A53 64 bit at 1.6 GHz clock speed.
– Linux Kernel 5.10.72 – Debian | Yocto Kirkstone Distribution
– Neural Processing Unit (NPU) up to 2.3 TOPS (optional)
– GPU (optional)
OpenVG 1.1, G2D, OpenGL® ES 3.1 Vulkan®, OpenCL™ 1.2 FP
– NAND FLASH 1 GByte.
– EMMC FLASH 8 GByte (options up to 32 GBytes)
– LPDDR4 2GBytes (options up to 4 GBytes)
– MicroSD card holder for additional storage.

LTE Cat 4 / 3G / 2G

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

GNSS

Concurrent receiver: GPS/GLONASS/QZSS/BeiDou.
– 72-channel* continuous tracking receiver.
– GALILEO E1B/C ready.*
– SBAS: WAAS, EGNOS, MSAS, GAGAN.
– Update Rate: up to 10 Hz.
– Accuracy: 2.5 meters CEP.
– Signal Acquisition:
Cold Start: 26 s.
Hot Start: < 1.5 s.
– Active Antenna Power Supply: +3 V @ 34 mA..

** Features availability depending on version*

Interfaces

– Up to 4 CAN-FD SIC bus
– Integrated sensors.
- Programmable 6 axis sensor, accelerometer and gyroscope.
– TPM 2.0
– 12 configurable digital input/outputs:
- 50V max inputs (logic low < 1.5 V, high > 3 V).
- All inputs function as wake signals for low power modes.
- All inputs can be used as counters (odometer). 32 bit, 3 kHz max.
- 10 open collector outputs (200 mA each).
- 2 high-side switches to Vin for output (1 A each).
- Short-circuit protection for all outputs.
– 4 analog inputs:
- 12 bit resolution, 1% accuracy.
- 1 Share digital I/O pins and 3 dedicated pins.
- 0-5,12 V (5 mV per bit) or 0-30,72 V (30 mV per bit) configurable by SW
– Maxim 1-wire
– microSD card holder
– 1 USB Host 3.0, current limit 900 mA.
– 2 external RS232 ports:
- 1 x (TX/RX/CTS/RTS)
- 1 x (TX/RX) or RS485 (factory option)
– 802.3bw 10/100BASE-T1 (SPE) or 802.3u 10/100BASE-TX
– Vout 5 V power output (500 mA max).
– FAKRA antenna connectors
– 4 LEDs for status indication

** Availability of features depends on models*

Power Supply:

– 24 V (9 V to 36 V) DC input.
– Typical consumption at 24 V

OFF	0.98 mA
Standby	12.36 mA
RUN	51.95 mA
RUN + GSM + GPS	92.60 mA

Batteries

Back-up when there is no power supply available.
– Standard backup battery for RTC. Duration 10 years.
– Optional rechargeable Li-Ion 3.6V. Inserted via battery cover.

Temperature

Safety Purposes Operating Temperature Range without Li-ion Battery	-40 °C to +70 °C
Safety Purposes Operating Temperature Range with Li-ion Battery	-40 °C to +55 °C (from external power supply) -20 °C to +53 °C (battery can power the unit) 0 °C to +45 °C (battery will be charged if external power available)

Rugged enclosure

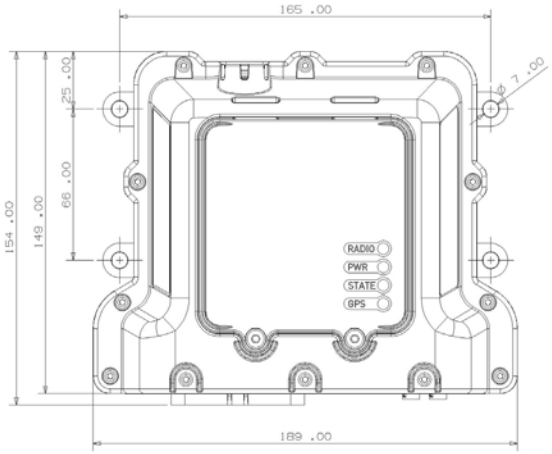
– Environmental protection to IP6K9K standard. (full protection against dust and water).
– Dimension: L=154 x W=188 x H=62 mm)
– Weight: 768 gr
– Material: Glass reinforced polyester.
– System connectors: TE 776163-1 (35 pins)
– miniSIM (2FF)
– MicroSD

Development Kit

Includes: Developer's board owa5X, power supply cables, cables for interfaces, antennas, web access to: cross compiler, APIs, libraries, manuals and application notes.

Options

See DESI-BOK 000 5001 for product variants and options.



owa 5X

Product Variants

FEATURES	owa547
Processor/MHz	Quad Core Cortex A53 64bits
Linux OS	Debian 11 or Yocto Kirkstone, Kernel 5.10.72
RAM	2GB LPDDR4 (Up to 4 GB)
FLASH	NAND SLC 1GB
EMMC	8GB (Up to 32 GB)
TPM 2.0	YES
GNSS	YES
Global 4G cat 4	YES
DIGITAL I/O	12
ANALOG INPUTS [1]	4
ACCELEROMETER	3 axis
RS232	2
CAN-FD SIC 1	YES
CAN-FD SIC 2	YES
USB [4]	YES
ETHERNET (M12 connector)	10/100Base-T1 or 10/100Base-TX
FAKRA	YES
IP67/IP6K9K	YES

OPTIONAL FEATURES	
CAN-FD SIC 3 [2]	OPTIONAL
CAN-FD SIC 4	OPTIONAL
6 AXIS MEMS (ACC+GYRO)	OPTIONAL
RS485 [3]	OPTIONAL
WIFI + BT5.2	OPTIONAL
OPTIONAL BATTERY 3350mAh	OPTIONAL
OPTIONAL BATTERY 13400mAh	OPTIONAL
MFF2 SIM CARD	OPTIONAL
IBUTTON [5]	OPTIONAL

Notes:
1. Analog input 1 is multiplexed with DIO1
2. CAN3 not compatible with DIO2 and DIO3.
3. RS485 is not compatible with 2nd RS232.
4. USB connector no external access.
5. iButton not compatible with DIO6.