



Integrated Dataflow & Control

GMM WLAN-Transmitter

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1. Product description

The GMM WLAN-Transmitter can be used to provide NMEA0183 und NMEA2000 data for other devices via WLAN and LAN.

Furthermore the integrated NMEA parser is able to analyze the data on the bus and provide a direct display of the most important data with the integrated html sites. These sites can be accessed by every attached device with a simple browser.

Additionally the GMM WLAN-Transmitter can be used as a router and therewith provide an internet access for all attached devices via WLAN or LAN.

2. Connection



Figure 1: WLAN-Transmitter

Power supply

The GMM WLAN-Transmitter has two clamps for the power supply lettered with the symbols + and – (clamp 1 and 2). A voltage in the range of 9V-36V DC is necessary to power the WLAN-Transmitter. In case of a correct power supply a small internal blue LED is lighting.

Note: Please pay attention to the polarity. A false polarity can damage or destroy the device.

NMEA data

For serving attached devices with NMEA2000 data and to display NMEA data via the internal html sites, an Actisense NGT-1 USB is necessary. The NGT-1 can be attached in any USB connector on the upper side of the WLAN-Transmitter.

The NMEA0183 sender has to become connected directly through clamps on the side of the device. These clamps are lettered with the RxD, TxD and the ground symbol (clamp 5). The transmitting wire of the NMEA0183 sender has to be connected to the RxD clamp. Furthermore it is necessary to connect the ground of the sender to the clamp with the ground symbol. Normally it is not necessary to connect the TxD wire with the appropriated clamp because the WLAN-Transmitter does not send anything.

Note: Please restart the WLAN-Transmitter in case of a port change of the NGT-1. This can be done by cutting off the power supply for a few seconds or pushing the reset button.

WLAN

The WLAN adapter of the GMM WLAN-Transmitter is configured as an access point. All devices with an appropriated WLAN adapter can easily be attached to this.

The SSID in delivery state is „GMM-WLAN-Transmitter“ and the password is „gmm-wlan“. All attached devices have to be configured as DHCP clients in their adapter settings. They get their IP-address automatically from the WLAN-Transmitter in the range from 10.10.10.100 up to 10.10.10.250.

Local area network

The GMM WLAN-Transmitter can be connected directly into an existing local area network. Through this all attached devices are able to receive the NMEA data.

For this, simply connect the LAN socket with an appropriated Ethernet-cable with existing LAN. The WLAN-Transmitter uses a static IP-address configuration on this connector with the default IP-address 192.168.80.1. This address can be changed with the configuration tool stored on the WLAN-Transmitter itself. Due to this, the settings can be changed to the local demands.

Internet connection

The GMM WLAN-Transmitter provides the ability to connect another network with internet access in order to provide all attached devices via WLAN and LAN an internet access. For this it is necessary to connect the WAN connector with an Ethernet cable with the network or router with internet access. The router or network has to provide a running DHCP server for serving the WLAN-Transmitter with the necessary IP-address and routing informations. The GMM WLAN-Transmitter acts as DHCP client on this connector.

3. Configuration

It is possible to configure the most important settings of the GMM WLAN-Transmitter with a JAVA based configuration tool stored on the transmitter himself named „GMM-WLAN-Transmitter.jar“.

In order to use this please perform the following steps:

1. Establish a connection to the WLAN-Transmitter via WLAN or LAN.
2. Open a browser on your host computer and enter the following address: <http://<IP-Adress>/index.html> (the IP-Address is in delivery state: 192.168.80.1)
3. Please click on the button „GMM-WLAN-Transmitter“ beneath the writing GMM-WLAN-Transmitter Configuration Tool.
4. Store the received file and extract the archive.
5. Execute the „GMM-WLAN-Transmitter.jar“.

Note: For the execution of the jar file it is necessary to have a suitable JAVA version on your host computer. This can be downloaded on the following website <http://www.java.com/en/download/>.

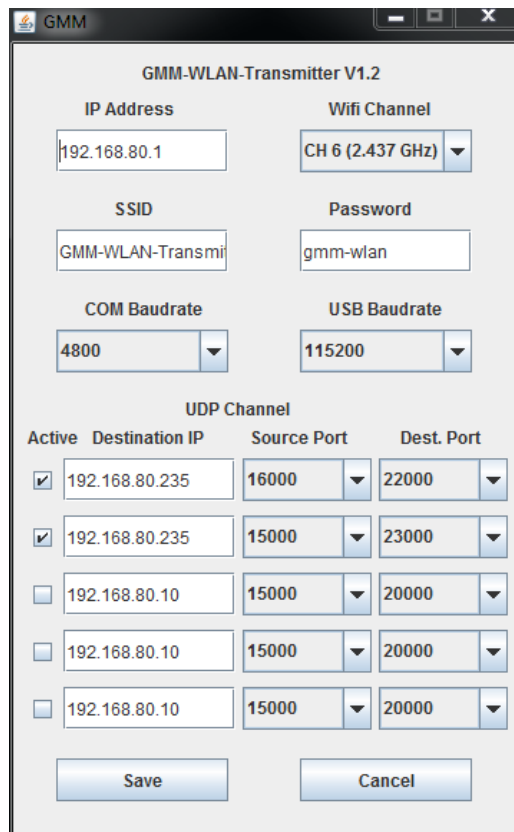


Figure 2: WLAN-Transmitter, configuration tool

IP-Address

In this text field it is possible to adapt the IP-address of the WLAN-Transmitter to the local demands.

Note: Please check the entered IP-address twice before submitting them to the transmitter. The entered address will be checked only for formally correctness, not suitability. With an unsuitable address, the contact to transmitter could be permanently lost.

WLAN-Channel

With this drop-down box it is possible to change the wireless channel. This is especially usefull in case of excessively used channel by other access points in the neighborhood.

Note: Some devices have problems using some channels. If you encounter excessive connection losses or other connectivity problems it is reasonable to try a change of the channel. This improves the stability in many cases.

SSID

In this field it is possible to change the default SSID to another user defined one. After a reboot of the WLAN-Transmitter this SSID is used.

Note: Please avoid all kind of special characters, especially the space. They often result in connectivity problems.

Unproblematic characters are: a-z; A-Z; 0-9; _-(!)=,.

Password

The user can define his own password for the WLAN access in this text field. Changes will become active with the next reboot.

Note: Like for the SSID it is reasonable to avoid any kind of special characters here, especially the space.

Unproblematic characters are: a-z; A-Z; 0-9; _-(!)=.

Baudrates

The drop-down box „COM Baudrate“ defines the baudrate of the attached NMEA0183 sender. This setting has to match with the settings of the sender for proper operation.

The drop-down box „USB Baudrate“ changes the baudrate of the attached Actisense NGT-1. Normally the default setting of 115200 will work fine. If the settings of the NGT-1 has been changed, this can be adjusted here.

Incorrect entries will be rejected by the software and left unsaved. Please correct the entries and try again if this happens.

Proper baudrates are:

- 4800
- 9600
- 14400
- 19200
- 28800
- 38400
- 57600
- 115200

UDP-Channel

Additionally to the normal TCP data transmission it is possible to activate up to five UDP channels for serving attached devices with NMEA data. This is useful for some software products which can only handle UDP transfers.

For using this feature it is first of all necessary to activate a channel. The text box IP-address has to be filled with the IP-address of the receiving device. The setting of the drop-down box “Source Port” defines the kind of data (port 15000 for NMEA0183 data and port 16000 for NMEA2000 data). With the drop-down box “Destination Port” it is possible to freely select a port for the data transmission. These settings have to match with settings of the receiving software product

Example: You wish to transmit NMEA2000 data via UDP to a laptop with the IP-address 192.168.80.75. The software on the laptop expects the data on the port 22000.

In this case activate channel 1 (set the hook in the checkbox), set the IP-address to 192.168.80.75, the source port to 16000 and the destination port to 22000 and the WLAN-Transmitter will send you data after next reboot.

4. Data transmission

The NMEA data of the GMM WLAN-Transmitter can be accessed with the following IP / port combinations:

	IP:	192.168.80.1
PORT:	NMEA0183:	15000
	NMEA2000:	16000

Note: For testing the connection you can easily enter the following into a browser:

http://<IP-Adresse_WLAN-Transmitter>:15000

In case of an attached and working NMEA0183 sender your browser will directly show the raw NMEA0183 data. For example:

```
$GPRMC,093436,V,5337.0533,N,01023.5694,E,000.0,000.0,240596,000.4,E*6B
```

```
$GPGGA,093436,5337.0533,N,01023.5694,E,0,00,,M,,M,,*5F
```

```
$GPGSA,A,1,,,,,,,,,,,,,*1E
```

....

For testing the NMEA2000 connectivity change the port settings to 16000. Unlike the NMEA0183 data this stream is binary and will be shown as a string of unreadable special characters. But if you determine a constantly growing behavior it works fine.

5. NMEA data displays

The integrated NMEA parser analyzes the upcoming data stream of all attached NMEA senders and shows the most important data on two integrated websites. These sites can be accessed by all attached devices (via LAN or WLAN) with every normal browser:

192.168.80.1/nmea.html and

192.168.80.1/motor.html

You can switch between these sites with the small navigation buttons in the upper left and upper right corner of the sites.

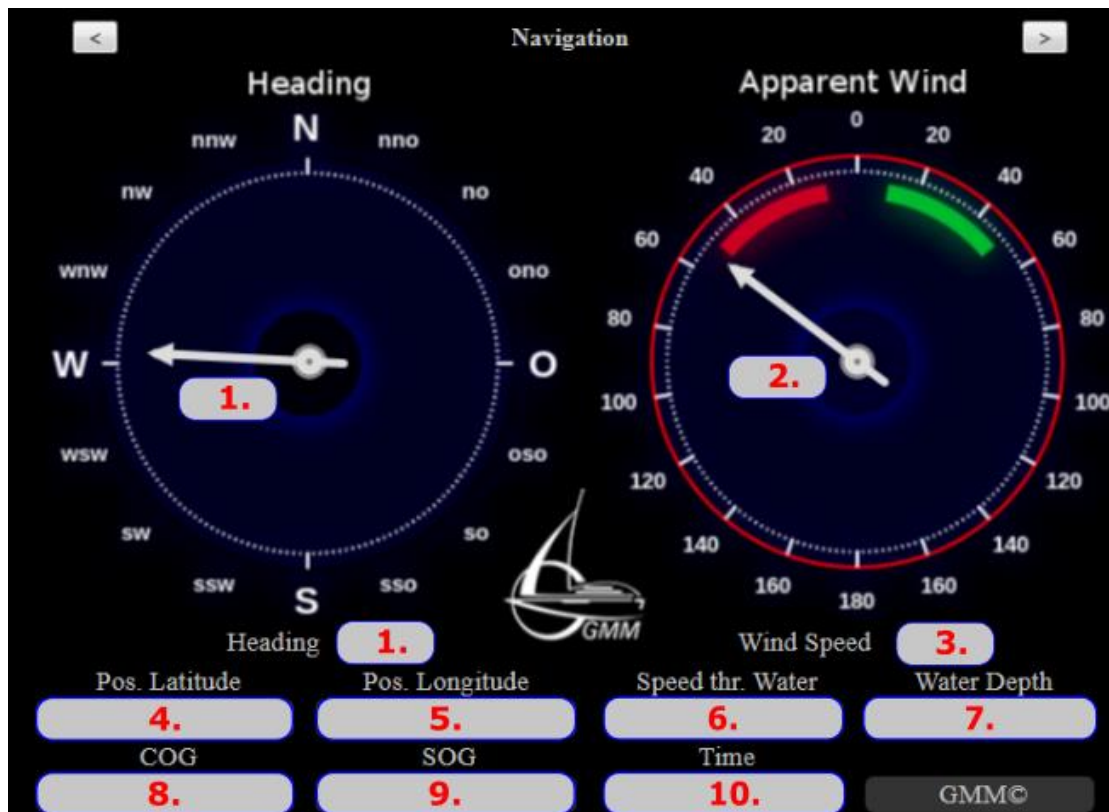


Figure 3: data display navigation

The following table shows the data-sources for every data-item used by the NMEA parser. There is a built-in priority to enable a wide spreaded coverage of the different system configurations. The highest priority is for NMEA2000 sentences.

		Priorität 1	Priorität 2	Priorität 3	Priorität 4	Einheit
Datenfeld	Name	N2K PGN	NMEA0183	NMEA0183	NMEA0183	
1.	Heading	127250	HDM	HDG	-	°
2.	Wind Direction	130306	VWR	-	-	°
3.	Wind Speed	130306	VWR	-	-	kn
4.	Position Latitude	129029	RMC	GLL	GGA	-
5.	Position Longitude	129029	RMC	GLL	GGA	-
6.	Speed through Water	128259	VHW	-	-	kn
7.	Water Depth	128267	DPT	DBT	-	m
8.	Course over Ground	129026	RMC	VTG	-	°
9.	Speed over Ground	129026	RMC	VTG	-	kn
10.	Time (UTC)	129029	RMC	GLL	GGA	-

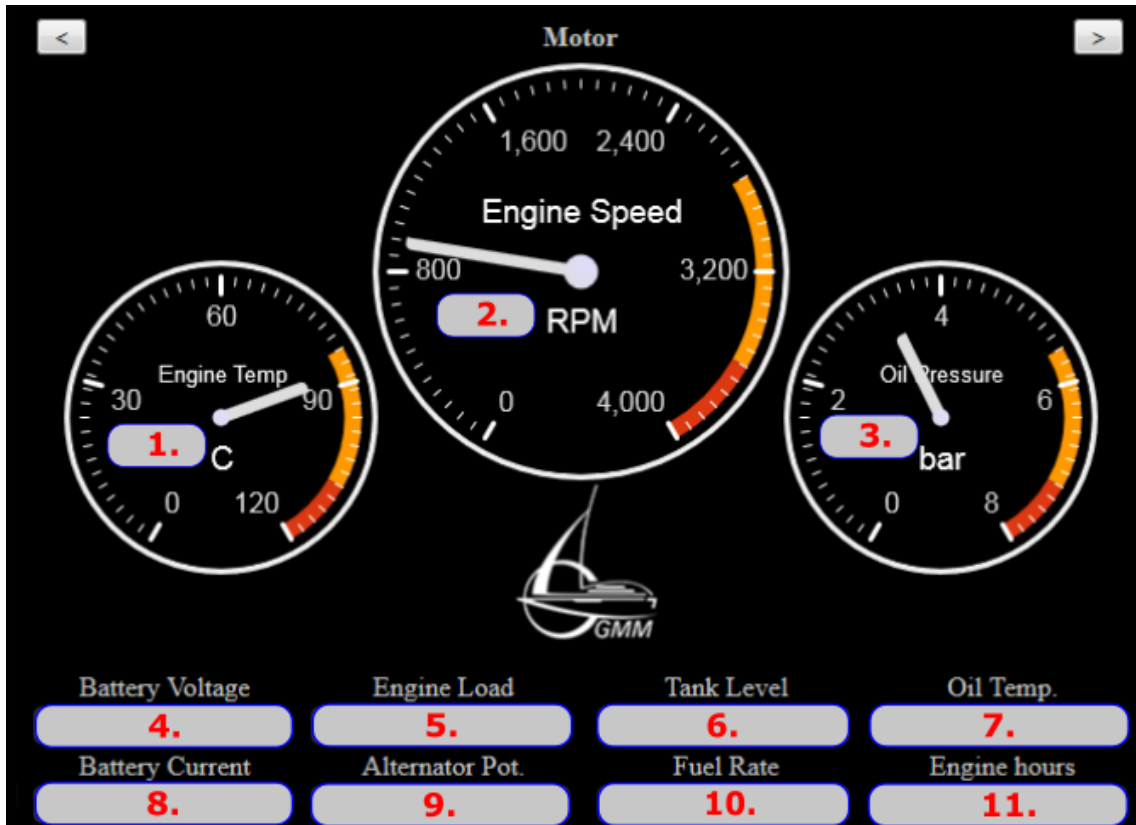


Figure 4: data display engine

		Priorität 1	Einheit
Datenfeld	Name	N2K PGN	
1.	Engine temperature	127489	°C
2.	Engine revolutions	127488	RPM
3.	Oil pressure	127489	bar
4.	Battery voltage	127508	V
5.	Engine load	127489	%
6.	Tank level	127505	%
7.	Oil temperature	127489	°C
8.	Battery current	127508	A
9.	Generator voltage	127489	V
10.	Fuel flow	127489	l/h
11.	Total engine hours	127489	h

Note: For getting the appropriated data from the NMEA2000 bus it is possibly necessary to activate the desired sentences (PGNs) in the NGT-1. Please use the software NMEA-Reader from Actisense for this issue. You can download this from their website. For the configuration you have to attach the NGT-1 directly with a Windows PC.

6. Troubleshooting

Problem: The GMM-WLAN-Transmitter does not appear as WLAN access point

- Does the WLAN-Transmitter have a proper power supply? A small internal blue LED is lighting if yes.
- Please wait approximately 60 seconds until the GMM WLAN-Transmitter appears.

Problem: There are no WLAN Access-Points at all

- Please activate your wireless adapter on your PC. In some cases a temporary deactivation and activation of the adapter can help resolving this problem.

Problem: I cannot find the WLAN-Transmitter in the local network

- Please check the cabling between the WLAN-Transmitter and your local network (switch / hub etc.)
- Open a command prompt (on windows) and enter the following command:
ping <IP-address_of_WLAN_Transmitters> (example: ping 192.168.80.1)
If no one answers please check your settings of the network adapter (IP-V4 settings in the network settings). Check the radio for a static IP-configuration and enter a free and valid IP-address in the range of the WLAN-Transmitters network. In delivery state the WLAN-Transmitter has the IP 192.168.80.1, a freely chosen IP-address for the host could be 192.168.80.120 (assuming no one else uses the 120).
Now the device will answer your „ping“.

Problem: I cannot connect to via WLAN

- Is your wireless network configures as DHCP client? You can change this setting in the IP-V4 setting of the wireless adapter.
- Is your password correct?
Note: Please avoid any kind of unprintable special characters in this setting and check if the password matches via the configuration tool.

Problem: I cannot see all NMEA2000 data on the data displays

- Please check the settings of the NGT-1 via the configuration tool „NMEA-Reader“ from Actisense. Possibly your desired PGNs are not activated by default.

Problem: I cannot get an internet connection (via LAN and WLAN)

- The WLAN-Transmitter needs an active DHCP server on the WAN connector (network). Please activate this function in your router.

Problem: The WLAN connection is up but with restricted access

- This is no problem. The host misses the internet connection..

Problem: There are no data from the NMEA2000 bus

- Please check the cabling of the NMEA2000 bus. If everything is fine a red LED is blinking inside the NGT-1.

- Is the baudrate correct? Please check this setting via the NMEA-Reader and set them accordingly to both devices.
- Reboot the WLAN-Transmitter (by pressing the small Reset-button or disconnecting and reconnecting the power supply).

Problem: There are no NMEA0183 data at all

- Please check the cabling.
- The WLAN-Transmitter needs at his RxD clamp a correct RS232 voltage level of approx. +- 12V.
- Is the baudrate correct? Please verify the settings of your NMEA0183 sender and align this with the settings of the WLAN-Transmitter.

Problem: My app / software cannot use the data

- Many apps on the market advertise with the ability to use NMEA2000 data but in fact they expect NMEA2000 data „packed“ into NMEA0183 sentences. Please contact your software manufacturer in this issue.

7. Scope of delivery

- 1 GMM WLAN Transmitter
- 1 USB stick with manual

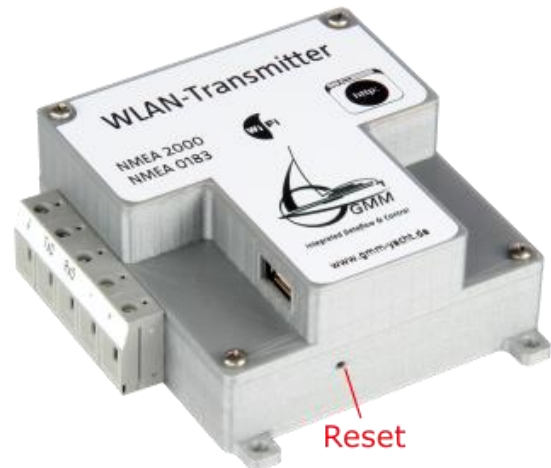
8. Specifications

Power supply		9V – 36V DC (approx. 2,4W max.) Connection via clamps
Serial	Type	RS232 Connection via clamps
USB	Type	3 USB2.0 Type A Female connector
WLAN	Speed	150 Mbit/s
	Frequency	2,4 GHz
	Standard	802.11bgn
LAN/WAN	Speed	100Mb/s
	Duplex	Full

LAN and WAN connectors



Reset Button



Contact

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