

## Wi-Fi CAN BRIDGE



# Overview

**WCB (Wi-Fi CAN Bridge)** implements wireless CAN communication over Wi-Fi 802.11b/g. Designed for use in vehicles and mobile machinery. Possible to configure as a Wireless Access Point or a Wireless Client.

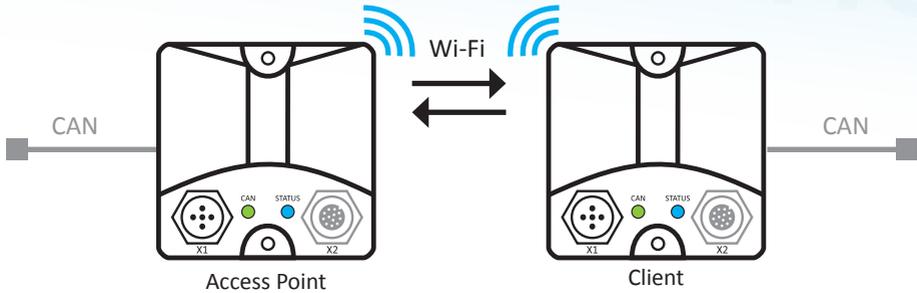
 The WCB module is designed to work as a CAN bridge, monitoring, log and CAN device updating tool in contexts where cable connections are disadvantageous or impossible. It is not designed for use as a bridge for wireless steering/control. This is mainly out of safety reasons, due to the nature of Wi-Fi network devices possible down-time caused by signal interference or re-connection procedures.

### Content

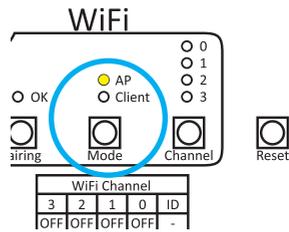
1. Create a CAN bridge
2. Connect to WCB module
3. Bootload (software update) other CAN nodes
4. CAN monitoring
5. Event log
6. Technical specifications
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## 1. Create a CAN bridge

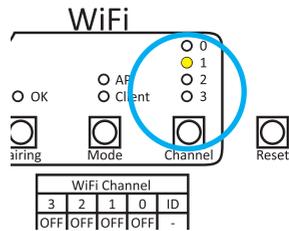
The WCB module is equipped with a **CAN bridge** feature, allowing two WCB modules to form a transparent CAN bridge between each other.



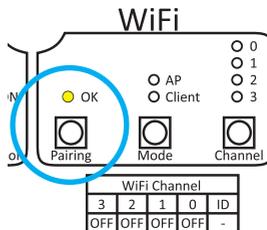
1. First you need to configure one WCB module as an Access point (AP) and the other as a Client. Press Mode  on the Wi-Fi panel to switch to desired state (AP or Client). LED will indicate the selected configuration.



2. Make sure both modules are running on the same Wi-Fi channel (channel 2 by default).

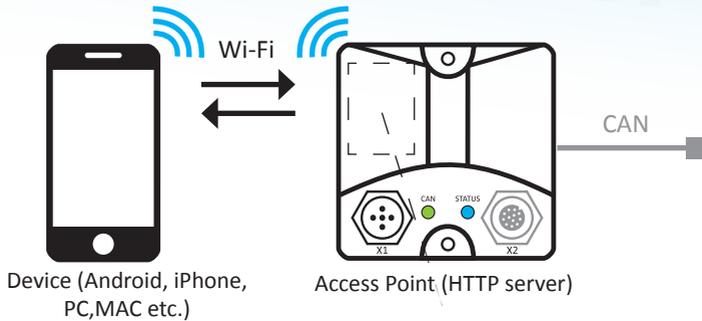


3. Press Pairing  on both modules (time and order not important). Pairing LED will now start to blink and eventually turn to a permanent ON state when they are successfully paired.

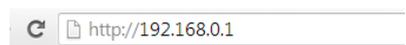
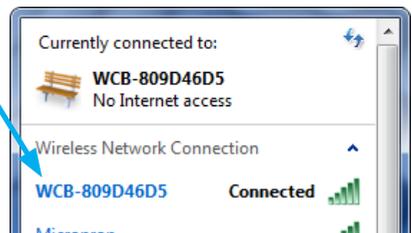
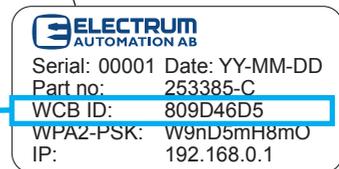


For more detailed information, please download full product sheet at [www.electrumab.se/produkter](http://www.electrumab.se/produkter)

The WCB module is equipped with an **embedded HTTP server** (web server). This allows user to connect to the WCB module from any platform, such as Android, iPhone, Windows phone, PC, MAC etc.



1. This guide assumes that your WCB module is configured as an Access Point. If not, see page 1.
2. Scan for Wi-Fi networks on your device. Locate the WCB ID in the list of available networks and press connect. Enter the WPA2-PSK passphrase. ID and passphrase is readable on the sticker.
3. You can now access the customer specific web page (customizable) by typing <http://192.168.0.1> in your web browser. Loaded by default is an end-user template demo. Type <http://192.168.0.1/WCB> to access the built in WCB management page.

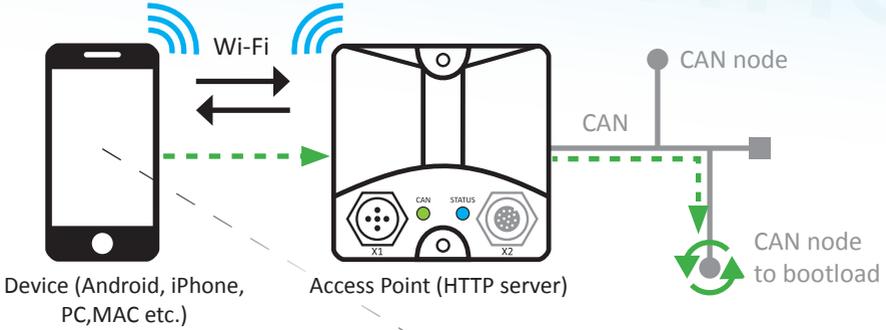


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### 3. Bootload (software update) other CAN nodes

From the [management page](#) you can perform external **bootload** of other CAN nodes, connected to the same physical CAN bus as the WCB module.



This brief guide assumes that you are logged in to your WCB module and have accessed the management page (if not, see page 2).

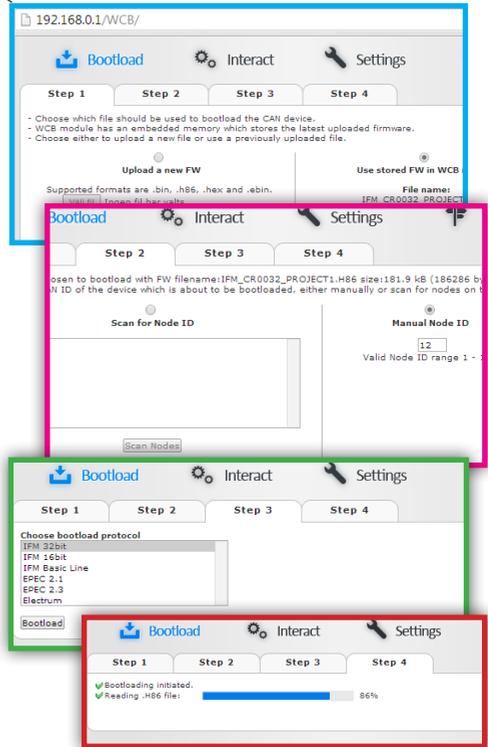
An update is done following these four steps in the management page:

**Step 1:** Upload a new file or choose an existing file stored in the WCB module.

**Step 2:** Select node ID. You can select to scan all nodes or enter a ID manually (1 - 127).

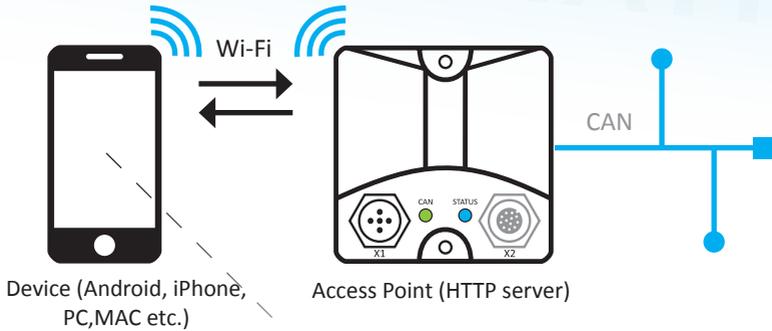
**Step 3:** Choose desired bootload protocol from the list.

**Step 4:** Monitor the bootload process. You will get notified if the bootloading was aborted followed by the cause of abort.



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Monitor a CAN bus connected to the WCB module. Helps you getting a quick health check of the CAN bus. Monitor error frames, verify bus load, view CAN packets etc.



To access the monitoring feature in the management page, click "Interact" then choose tab "Monitor".

The screenshot shows the web interface for the WCB module at IP 192.168.0.1/WCB/. The 'Interact' tab is selected, and the 'Monitor' sub-tab is active. The interface displays several status indicators and a table of CAN bus data.

**Status Indicators:**

- ✓ CAN baud rate: 125000 bps
- ✓ CAN status: Bus ok
- ✓ CAN bus load: 13%
- ✓ CAN RX error counter: 0
- ✓ CAN TX error counter: 0
- ✓ CAN RX rate: 200 p/s
- ✓ CAN TX rate: 4 p/s
- ✓ CAN monitor overrun: 0 packets
- ✓ CAN monitor status: Started

**CAN Bus Data Table:**

Identifier	Dir	Ide	Dlc	D0	D1	D2	D3	D4	D5	D6	D7	Time	Rate (p/s)
001	RX	0	4	31	40	02	00					205621316	10
002	RX	0	4	32	40	02	00					205621321	10
003	RX	0	4	33	40	02	00					205621326	10
004	RX	0	4	34	40	02	00					205621331	10
005	RX	0	4	35	40	02	00					205621336	10
006	RX	0	4	36	40	02	00					205621341	10
007	RX	0	4	37	40	02	00					205621346	10
008	RX	0	4	38	40	02	00					205621352	10
009	RX	0	4	25	40	02	00					205621257	10
00A	RX	0	4	26	40	02	00					205621272	10
00B	RX	0	4	27	40	02	00					205621275	10
00C	RX	0	4	28	40	02	00					205621275	10
00D	RX	0	4	29	40	02	00					205621276	10
00E	RX	0	4	2A	40	02	00					205621281	10
00F	RX	0	4	2B	40	02	00					205621286	10
010	RX	0	4	2C	40	02	00					205621291	10
011	RX	0	4	2D	40	02	00					205621296	10
012	RX	0	4	2E	40	02	00					205621301	10
013	RX	0	4	2F	40	02	00					205621306	10
014	RX	0	4	30	40	02	00					205621311	10
76A	TX	0	1	05								205621282	4

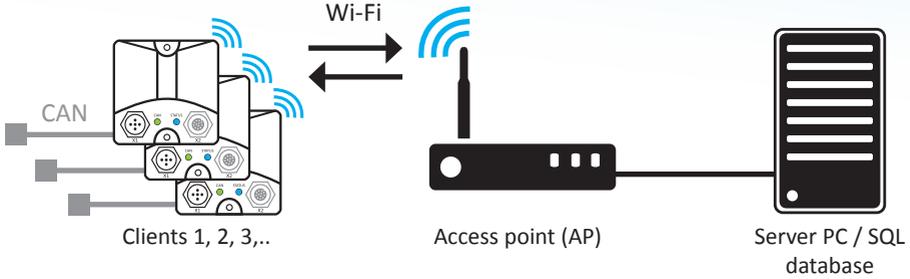
Control buttons on the right: Start monitor, Stop monitor, Clear log,  Fixed positions.

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## 5. Event log

Multiple WCB modules can communicate with a standard Wi-Fi 802.11 Access Point/Router which is connected to a PC server. A WCB module can log and store data over time (**Event Log**). If out of range with the AP, it buffers data. Once in range again, it will automatically transmit the stored data to the AP -> Server\*.

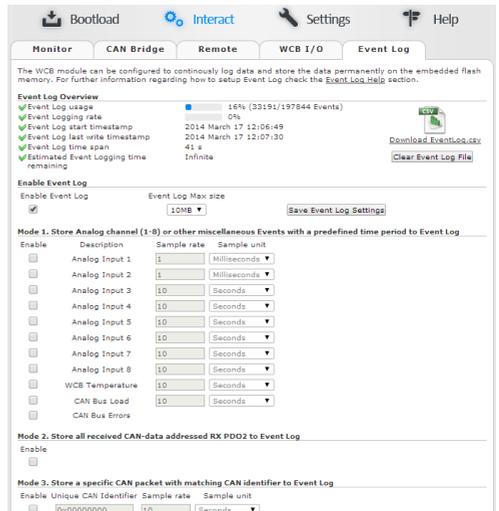
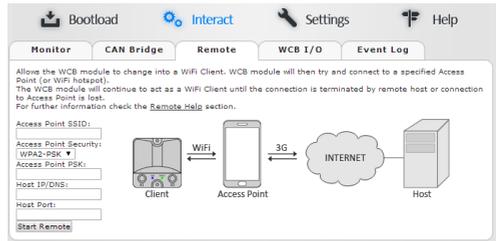


Each WCB module needs to be configured as clients to a desired AP. This is done in the management page under "Interact" and tab "Remote".

Under tab "Event Log" you get full control over what data (CAN-specific and/or CAN-all and/or Analogue) and when it should be saved to the Event log.

The module can log and store data in the built-in flash memory. When the module is in range and connects with the AP, it can be configured to transmit the Event Log at a desired time-based manner. This enables data to be synchronized to for example an SQL database.

It is also possible to download and save the event file (.csv) manually.



\*AP -> Server functionality to be released Q2 2014

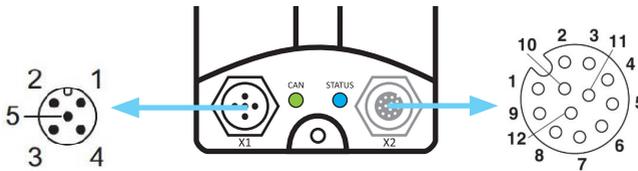
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### Electrical characteristics

Parameter	Condition	Min.	Typ.	Max.	Unit
Operational voltage <sup>(1)</sup>		9		32	V <sub>DC</sub>
Power consumption <sup>(1)</sup>	32V < V <sub>IN</sub> > 9V	1	1.3	1.6	W
CAN termination	CAN <sub>termination</sub> = On	118	121	132	Ω
Operating temperature		-40		85	°C
Analog Input voltage	8 channels on X2	0		5	V <sub>DC</sub>
PWM Output current	2 low-side output on X2 connector			100	mA
5V Output	5V output on X2 connector			500	mA

Note: 1. Module fully operational

### Connectors



X1: 5 pole M12 Male connector	
1	GND
2	9..32V <sub>DC</sub>
3	GND
4	CAN <sub>H</sub>
5	CAN <sub>L</sub>
SHIELD	GND

X2: 12 pole M12 Female connector (optional)	
1	GND
2	+5V <sub>DC</sub> output
3	PWM output 1 (100mA)
4	PWM output 2 (100mA)
5	Analog input 1 (0-5V)
6	Analog input 2 (0-5V)
7	Analog input 3 (0-5V)
8	Analog input 4 (0-5V)
9	Analog input 5 (0-5V)
10	Analog input 6 (0-5V)
11	Analog input 7 (0-5V)
12	Analog input 8 (0-5V)
SHIELD	GND

CAN format: CAN 2.0A and CAN 2.0B  
 CAN baud: up to 1Mbit/s

Dimensions: 80x72x26mm  
 Mounting: Two Ø 4.5mm holes

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