



AM / FM / SSB CB-Transceiver

according to EU standard EN 300 433-2

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Legal and General Information

The legal regulations in some countries demand a printout of our CE Declaration of Conformity in its original wording (editorial status: February 2009). The latest regulations, announcements and other documentation for this device are published in the service download area at www.hobbyradio.de or www.alan-albrecht.info. Please observe the country-specific regulations when using this device and take the obligatory registration in individual countries and possible operation restrictions serious! Although entrainment for the device when traveling to other EU countries is generally permitted according to European law, for its operation still the national regulations apply.



CE- Declaration of Conformity / Konformitätserklärung

We hereby declare that our product: / Wir erklären hiermit, dass unser Produkt

CB-Radio Albrecht AE 5800

satisfies all technical regulations applicable to the product within the scope of EU Council Directives, European Standards and national frequency applications:/ alle technischen Anforderungen im Geltungsbereich der EU Richtlinien, europäischer Normen und nationaler Frequenzanwendungen einhält:

73/23/EEC, 2004/108/EG and 99/5/EC
EN 300 135 -2 V.1.2.1 / EN 300 433-2 V.1.1.2
EN 301 489-1 V.1.8.1, EN 301 489-13 V1.2.1, EN 60 950-1:2006

All essential radio test suites have been carried out. /
Alle für das Produkt vorgeschriebenen Funktestreihen wurden durchgeführt.

Alan Electronics GmbH
Daimlerstr.1 k
D- 63303 Dreieich

This declaration is issued under our sole responsibility. Basing on not harmonized frequency applications, the CB radio may be used only in listed countries according to selected channel programming. An individual license for operating this radio in **AM + SSB +FM** is requested from residents of **B, CH, E, FL, I**, while travelers may use their radios free of charge and license. In **Germany, France, Finland, Greece, Latvia, Netherlands, Poland and Portugal** the operation of this radio is free of license for all users. This radio may be subject of restrictions in other countries, where SSB is not accepted. Use of additional accessories like Packet Radio modems via MIC socket is only intended to be used in FM mode and may be restricted to individual channels depending on national frequency allocations.

Diese Erklärung wird unter unserer alleinigen Verantwortung abgegeben. Dieses Funkgerät darf wegen der nicht harmonisierten Frequenzanwendungen in **AM + SSB + FM von Bewohnern von B, CH, E, FL, I nur mit gültigen CB Funkgenehmigung** in Betrieb genommen werden, während ausländische Reisende Ihr Gerät frei benutzen dürfen. In Deutschland, Finnland, Frankreich, Griechenland, Lettland, den Niederlanden, Polen und Portugal ist die Benutzung für alle Benutzer allgemein freigegeben und anmelde- und gebührenfrei. **Dieses Gerät darf in Ländern, in denen SSB nicht freigegeben ist, nicht benutzt werden.**

Der Anschluss von Audio-Zubehör, wie z.B. Packet Radio Modems, ist nur in der Betriebsart FM vorgesehen, die Benutzung von Packet Radio kann in einigen Ländern auf bestimmte national freigegebene Kanäle begrenzt sein oder auch generell nicht gestattet sein.

Point of contact/Ansprechpartner:
Place and date of issue:

Dipl.-Phys. Wolfgang Schnorrenberg
Dreieich, 01. 03. 2010

(Signature)
Dipl.-Phys. Wolfgang Schnorrenberg
Alan Electronics GmbH

Preparation for Use

General Use Instructions

This AM-FM-SSB transceiver AE 5800 is a universal CB radio for 12VDC power supply. It can be connected to powerful 12V batteries, such as rechargeable lead batteries, but also via a suitable 12V power adapter with at least 6A stabilized constant current to 230V mains power supply. Due to its SSB operation, demanding repeated fine-tuning and delicate operation, the radio is **not intended for the use in vehicles when driving**.

The radio is intended for intermittent operation with an average transmission time of approx. 10% of its duty cycle, as it is typical for CB operation. This device is not intended for continuous transmission without regular reception periods as cooling phases. Avoid subjecting your radio to high humidity, extremely high or low temperatures, dust and direct sunlight. Only open the casing of your radio if you are knowledgeable in this regard, have the correct tools and measuring devices.

The device comes with the internationally common CB radio range with 40 channels in all modes AM, FM, USB and LSB switchable. The Declaration of Conformity according to the new European standard EN 300 433-2 is only valid, as long as the device is not modified and is used according to this user manual. Any extension of the frequency range and the use of other channels and modes than permitted in the individual countries may lead to prosecution.

Connect to Power Supply

Connect your device with the supplied DC cable to a 12V network or a 12V power adapter. Voltage fluctuation between 11V and 14V for power adapters and max. 15.6V, as in vehicles, campers or boats with rechargeable lead battery, chargers or alternators, are permissible. Battery and/or power adapter must supply at least 6-8 Ampere with good stabilization. Do not extend the power cord. In vehicles always try to connect directly to the battery terminals. In this case you have best immunity against interferences from ignition and alternator and the most stable supply voltage.

In case the fuse integrated in the DC cable blows, please check the possible cause first (commonly voltage reversal and a flyback diode has reacted) and replace the fuse only with same type (10 Ampere, American glass fuse), and never bypass with foil or similar measures!

Connect the red cable to the + terminal, and the black cable to the – terminal of the power source.

The minus terminal for this radio is on the casing, as usual for all modern vehicles. When installing in boats safety measures against electrolytic and/or galvanic corrosion, such as insulated installation and galvanic insulation of the antenna connections may be necessary due to the grounding of the casing.

Safety Precautions and Vehicle Installation

The device contains no components that must be accessible for the user during operation. Leave the opening of the casing to experts. Do not open the casing before disconnecting from 12V power supply. Only work on the device with dead voltage. For use in vehicles mount your radio with the supplied screws and bracket in a suitable position. Ensure that no risk of injuries for driver and passengers comes from the mounting position and avoid close proximity of air vents. Do not use your radio when driving. The device is neither intended nor approved for this kind of operation. According to the Federal Motor Transport Authority the device is due to its risk potential only to be used in parked vehicles.

Select Antenna

Vehicle Antenna

This radio is not to be used with common CB radio makeshift antennae, such as a mini magnetic antenna, window clip antenna or adhesive window antenna. For electromagnetic compatibility in combination with near electronic components a powerful vehicle antenna with antenna base earthed via the chassis is to be used. When selecting the antenna position keep the greatest possible distance to passengers and all vehicle electronics. Avoid the side of the mudguard as mounting position which is nearer to passers-by on walkways. (this may be the left side in UK and the right side in continental Europe). Ensure best grounding for antenna base, as this ensures that no HF reaches the interior of the vehicle via sheath waves.

According to the latest EU directives vehicle manufacturers have the right to stipulate antenna positions and maximum compatible transmission power for their vehicles. Please observe these guidelines, as you may otherwise risk losing the operating license for your vehicle. Ask your vehicle manufacturer for further information. Have your vehicle manufacturer verify that he has no objections against the CB radio operation in connection with the vehicle electronics!

Even though the effects of “electric smog” are controversial, you may not want to expose other persons, who may think your hobby dangerous, to electromagnetic fields. In case you wear a pacemaker, please observe the greatest possible distance to the antenna. If in doubt, obtain the manufacturer’s information with regard to recommended safety distance.

It goes without saying that your antenna is to be optimized in standing wave ratio. The AE 5800 output stage copes during operation with SWR of up to 1:2 at full capacity and short-term up to 1:3 (e.g. during adjustment). Never press the transmission button without connected antenna!

The radio is equipped with a SO 239 socket (for PL connector) for antenna connection. For connection and cable up to approx. 15 m RG-58/U cable is sufficient, otherwise we recommend RG-213/U or RG-8/U cable. Do not use coax cable for satellite or TV, as these have 75 ohm and are not suitable for radio operation.

Operation as Base Station

Only use an external antenna for AE 5800. Any kind of interior antenna creates such high HF fields in close proximity that own electronic devices or devices of others are interfered with, even with sufficient EMC immunity according to EU directive! For instance hum trouble from your own power adapter or via the microphone to the transmitter, irradiation into VCR or hi-fi equipment and the like are well known. Especially in SSB mode, rather than in FM mode, it can come to interferences with other devices due to the pulsating transmission signals.

Location of Controls AE 5800



Controls and Switches

On/Off, Volume and Squelch Setting

Turn the combined volume/on/off control knob (1) to turn the device on and off. With first use set the volume to a medium level and turn the squelch button (14) fully counter-clockwise, until you can hear the background noise.

Now set squelch in such way that the background noise just disappears. In this position squelch opens even with weak signals and is in its most sensitive position.

If setting squelch above this point clockwise, the signals have to be stronger to be put through.

Channel or Frequency Display

With first use the unit starts in FM mode and channel 9 (27.065 MHz) is displayed. The unit starts in **channel mode**.



Channel mode



Frequency mode

You can toggle your display to frequency mode similar to amateur radio devices. First briefly press the **FUNC** button (12). The display shows **FUNC**. Now press the **2** button (7).

The unit switches to frequency display and is in **frequency mode**. The frequency resolution corresponds to the common CD standard of international 10 kHz resolution, with some channels showing a 20 kHz step instead of 10 kHz (for historical reasons). You can tune the frequency via the **CHANNEL** knob (9) on the unit or with the UP/Down buttons on the microphone. Press **FUNC** followed by **2** to toggle between the display modes.

Mic Gain (3)

This control knob is designed for dual function with the RF gain control. Use the upper control knob (3) to set the sensitivity of the microphone. For the supplied hand microphone the control knob may be set to 2/3 or full (clockwise). For other microphones the control knob serves individual setting. Optimum modulation is best set with a control receiver or with an outstation.

RF Gain (4)

Use the RF Gain knob (lower, outer dial of the dual control knob) to set the amplification in the RF receiver. Turn fully clockwise for the unit to have the highest amplification and sensitivity. This setting is optimal for most receiving ratios. Turn the RF gain control knob back to mask unwanted long distance or interference signals, especially when deliberately listening to near stations. In SSB mode with high field strength it may be necessary to adjust the amplification with the RF gain control knob for optimum quality.

Clarifier (11)

This control knob serves the receiver fine-tuning and is only used in SSB mode if the distant partner station is not quite on the same transmission frequency. In radio circles with several participants you frequently have to fine tune individual stations with the clarifier for best comprehensibility.

LCD, S Meter and Power Meter

Your radio comes with a large backlit LCD for all settings, such as channel, frequency, status display and analog values, such as received field strength (S meter) and transmission power. In this way you always have the most important parameters in view. The S meter setting corresponds with the international short wave amateur standard: 100 μ V EMC antenna voltage corresponds to S 9. The S meter uses a 5-stage bar display on the LCD. The stronger you receive an outstation, the stronger is the deflection on the S meter.

For checking the S meter also works for transmissions as a **power meter** and gives you an approximate clue about the output power. You will see that for FM you will always have the same transmission display, for AM the deflection is generally less, and for SSB it varies with the rhythm of the speech.

Buttons AE 5800 (5-12)

The buttons of your unit are multi-functional and change automatically – according to the mode – or in combination with the **FUNC** button (12) manually. To avoid confusion you will find only the name of the corresponding function in this user manual. For instance for pressing the **MODE** button you will find **"MODE"** and not the all names of all functions for this button, such as **"MODE/LOW/5"**. Furthermore, all button functions, which are only possible in connection with the **FUNC** button, are printed in blue. In CB mode some functions are invalid. These functions are reserved for the amateur radio version of this unit (AE485 S).

Select Mode

Press the **MODE** button (8) to toggle between AM, FM, USB and LSB. The selected mode is displayed. The abbreviations stand for:

AM Amplitude modulation A3 with full carrier

FM	Narrow band frequency modulation (max. 2.0 kHz range)
USB	Single-sideband modulation, upper side band
LSB	Single-sideband modulation, lower side band

The different modes for CB radios are partly historical, as CB radio exists since the 1950s. **AM (amplitude modulation)** mode corresponds with the technical operation of medium wave and short wave broadcast and is, except for CB radio, currently used for aircraft radio. While speaking the transmission power is adjusted rhythmically (technical term "modulated"). AM is traditionally the radio system used by truck drivers worldwide for CB radio. The low background noise is advantageous if for instance in low interfering diesel trucks squelch is left open during standby operation. A disadvantage is the lower communication range compared to FM (because of higher allowed power in FM) or even SSB and the varying volume between near and far stations.

In **FM** mode the transmission power is always the same when speaking, thus hardly any interferences from other units are to be expected in this mode. Instead the frequency of the unit varies during speaking and for this reason it is called frequency modulation. Due to the interferences expected for AM and SSB some countries only permit FM. Advantage is a greater range compared to AM and a constant volume of near and far stations as well as a clear modulation sound. Some noise is a disadvantage and can be heard with weak or missing signals. In FM mode it is basically not possible to leave squelch open in standby operation.

SSB (Single-SideBand) marks the height in the development in long distance traffic voice transmission. SSB mode avoids the disadvantage of low range of AM and concentrates all transmission power on a minimum frequency width with speech pauses reducing the output to nearly zero. For reception a special circuit ensures that the transmission of cut off "sidebands" and the "carrier" are again restored. This achieves an enormous increase in range compared to AM and FM. Not only does the transmitter reach further, also the receiver is substantially more sensitive through the halved bandwidth. All this has to be paid for with the disadvantage of a very fine tuning being necessary for reception and that there is a higher risk of interferences of nearby devices during transmission. Due to the necessary fine tuning of the receiver with the "**Clarifier**" (11) the use of SSB in moving vehicles is a problem and can distract in an objectionable way from the traffic, similar to using a mobile phone. SSB is rather a mode for base stations. This is also the reason, why today only experienced radio operators use SSB – you really have to train and develop a sure instinct for the correct setting.

USB and LSB

In SSB mode a conventional channel is divided in two halves: the so-called **upper sideband (USB)** and the **lower sideband (LSB)**. Both can be used independently. Example: you transmit on channel 9 in USB. In reality you use for speaking only the frequencies upward of 27.065 to approximately 27.070 MHz, while in LSB mode the frequencies below 27.065 MHz to approximately 27.060 MHz are used. Both sidebands are mirror-inverted and this is why receiver and transmitter must be set to the same sideband. Otherwise you only receive some incomprehensible gibberish.

Set Transmission Power

Your unit comes with continuously variable transmission power. In normal state the control knob **PWR** (14) should be set fully clockwise. In this setting you achieve 4 Watts in FM and SSB and 1 Watt in AM. Turn counter-clockwise to reduce power to approx. 100 mW. This should be done if you want to be heard only in the absolute near proximity.

By the way: it also reduces the general electric smog level if the transmission power is set as low as just needed for the radio link!

How to Receive SSB?

As receiving station of course you do not know in which sideband your outstation is currently transmitting. That the outstation is transmitting in SSB mode is easily found out, because the "squawking noise" is very different from FM or AM signals. First receive in USB. Carefully tune through the **Clarifier**. If you hear a "Mickey Mouse like" pitch carefully fine-tune to a more comprehensible pitch. If this is not possible try the other sideband **LSB**.

You will need some experience until you clearly understand your first dialog partner in SSB mode. But surely you will soon be rewarded by your first DX (= long distance traffic) connection.

Use Frequency Memory

Frequently used frequencies or channels can be saved and retrieved including the corresponding mode by pressing **MSAVE/MLOAD** (10) in 5 station memories. The settings are not erased during temporary power failure, as the unit works with low power backup technology.

Enter Frequency

Set the desired frequency. Press the buttons **FUNC + MSAVE + station memory (1-5)** in sequence to save the frequency.

The display shows an “S” for “SAVE” after pressing **FUNC + MSAVE**.

Retrieve Frequency

Press **MLOAD** and the station memory (1-5) to access saved station memories (the display shows an “L” for “Load memory” after pressing **MLOAD**).

CALL (Channel 9, International CB Call and Emergency Channel)

Station memory 2 is especially easy to access by briefly pressing **2 (CALL)**. As a conformation for this preference channel the display flashes as long as the channel is selected. To leave the CALL channel briefly press **2 (CALL)** again. The last used channel is displayed again.

Tip: During receiving breaks switch to channel 9 and help with your standby operation to keep this channel open for emergency calls! Do not talk too long on channel 9. Agree on a different channel soon after finding a radio partner.

Scan Mode

Scanning allows you searching the band beginning with the last frequency or channel. In does not matter if the last frequency was a station memory. After finding a signal in scan mode this channel is monitored for maximum 8 seconds, unless the signal disappears earlier. In this case scanning starts again until the next signal is detected.

Start and Stop Scanning

Press the **SCAN (9)** button; scanning starts. You can stop scanning by either pressing the **PTT** button or pressing the **SCAN** button again.

Important: Scan mode uses the squelch setting as switching criteria. Set squelch first to the value for the scanner to stop at a used channel. Scanning is not possible with open squelch: This state is detected by the CPU as a used channel and it switches in 8-seconds cycle to the next channel.

Reverse Scanning Direction

You can change the scanning direction from up to down or vice versa at any time. Briefly turn the channel selector in the desired direction or use the **UP** and **DOWN** buttons on the microphone.

Last Channel Recall (LCR)

If you were scanning or listening a lot to other frequencies you may want to return to your last transmission channel by pressing a single button? Press the **LCR (6)** button to return to the last channel you used for transmission for more than 3 seconds.

Noise Blanker

A noise blanker is a circuit to fade out or limit temporarily pulsating interferences. As the CB band is especially effected by noise from electrical appliances and vehicles your unit is equipped with a corresponding function to be engaged in AM and SSB modes.

The noise blanker is activated/deactivated by pressing **FUNC** and **NB** (5).

Sound Filter

The receiver comes with a connectable sound filter, what is especially useful for noisy signals, as it dampens the aggressive high sounds, making the sound easier to listen to. Deactivate this filter by pressing **FUNC** and **LOW** (8).

Activate/Deactivate Key Tone

Turn the unit on while pressing the transmission button (**PTT** on microphone). In this way you toggle between activation and deactivation.

Interesting Facts Relating to the Technical Data Storage and Backup of Set Data

The radio is no longer equipped with a lithium battery, but uses the low power backup technology. For this reason data are only erased after a long time.

Ports for Additional External Devices Microphone Jack (2)

6-pole, Jap. standard, suitable for screwable electret or other microphones with approx. 600 ohm to 1 kOhm impedance.

PIN 1	Microphone NF
PIN 2	PTT-RX (not used for this unit) – also for NF extraction packet radio
PIN 3	PTT-TX contact
PIN 4	UP/DOWN button
PIN 5	Ground, shielding
PIN 6	Power supply for electret microphone (or other accessories)

Important: Wiring according to "Albrecht" Standard, widespread for CB radios. Please observe when connecting other microphones! In case you want to connect a different microphone: Only use microphones with electret capsules. Additional devices, such as modems, etc. are only permitted in FM mode. Please observe the regulations in the individual countries.

Speaker Jack (Rear)

3.5 mm mono jack, suitable for 4-8 ohm speakers with minimum 2-4 Watts. The internal speaker is automatically muted when connecting an external speaker.

Maintenance and Programming

The following references are exclusively for expert service staff. Program settings are only permitted for authorized users and for commercial export in countries allowing the corresponding versions. No responsibility for damages and consequential damage caused by incompetent or not expressly by Albrecht explained programming steps and other interference. The end user warranty generally expires with opening the casing. Only use Albrecht specialized dealers for modifications during the warranty period!

Reset to Default and Deleting All Memory

A general reset to factory settings is possible by disconnecting from power supply and briefly pressing the **reset** button on the separate small daughterboard after removing the speaker cover (visible after removing the cover). Perform this reset when experiencing malfunctions. There are inevitable external interferences, which may block the processor or lead to certain functions being not or not correct performed. The interferences can be caused by electric storms, overvoltage, to great HF irradiation and the like and are generally easily fixed by reset. However, reset also deletes all station memories.

For CB radio only the factory jumper setting CON 4 on the internal Sub Board is permitted.

Other settings are permitted for amateur radio. The user needs a valid amateur radio license. Even amateur radio operators are only allowed to use frequencies allocated for amateur radio, even if a device can be programmed for further frequency ranges. You find the permitted jumper setting for amateur radio operators at <http://www.hobbyradio.de/Amateurfunk> under AE 485S. Please note that our Declaration of Conformity expires with modifications. Already modifying the documented jumpers is a modification not permitted for CD radio operators, which may be punishable.

Disposal and Recycling

This radio was manufactured with low emission according to the new European RoHS and WEEE directives. For disposal please note that electrical and electronic devices can no longer be disposed of with the household waste; they must be disposed of at municipal collection points. The return of used appliances is free, as the manufacturers cover the disposal costs. By returning the device to a municipal collection point you contribute to the recycling of valuable resources.



European Warranty 2 Years from Purchase Date

The vendor of this device grants an implied warranty of two years from the date of purchase. This warranty includes all malfunctions caused by defective components of malfunctioning within the warranty period, but not malfunctions due to normal use, such as scratches on display or casing, defective casing, broken antenna, consumed light bulbs, damaged microphone cables and defects due to external forces, such as corrosion, overvoltage due to improper external power supply or the use of unsuitable accessories. Furthermore, malfunctions due to improper use, such as a defective transmission output stage caused by a mismatched antenna or connection of illegal amplifiers, are excluded from the warranty.

In case of warranty claims contact your dealer directly. The dealer will either repair or exchange the device, or he will give you the address of a specialized service center for the device.

If in doubt, please contact our hotline. In case you want to send your device in for repairs, please remember to include your proof of purchase and describe the malfunction as clearly as possible.

Technical Data

General

Frequency range	26.965 MHz - 27.415 MHz
Frequency stability	+/-400 Hz
Transmission type	A3E, F3E, J3E
Admissible operating voltage range	10.8 - 15.6V DC
Fuse	10 A

Transmitter

Transmission power	AM	1 Watt
(other power levels for different countries available on request)	FM	max. 4 Watts
Harmonic suppression	SSB	max. 4 Watts PEP
Microphone sensitivity		min. 90 dB (4 nW)
Supplied microphone:		4 mV / 1 kOhm
Dynamic control	microphone ALC	Electret with integrated pre-amplifier
Power consumption transmission		50 dB
		max. 2.5 (AM)
		max. 3.0 A (FM, SSB)

Receiver

Receiver sensitivity	for 12 dB SINAD	0.5 μ V EMK FM/SSB
Receiver adjacent channel selection		0.9 μ V EMK AM
Clarifier control range		60 dB FM/AM
Audio output power		70 dB SSB
		+/- 1 kHz
		2.5 Watts at 8 ohms
Dimensions incl. knobs/jacks		24.5 x 15.5 x 5.3 cm
Weight		1.3 kg

Service Contact Address (in Germany)

You find technical documentation and the latest information regarding the regulation in individual EU countries in the service pages of the Albrecht and Alan websites and directly on the download server **www.hobbyradio.de**

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<http://www.albrecht-online.de> **<http://www.alan-electronics.de>**

Service enquiries: **alan-service@ps-tech.de**

Hotline 01805 - 012204 (0,14 Euro/minute from German landlines, mobile may be different)

Important: Customers in Germany should contact the Hotline before returning any radio, because only our service address can give you the nearest and best service partner address for the most efficient repair service.

Customers in other countries please contact the local distributor, where you have bought the radio

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