**Electronic kits and modules**

**> Miscellaneous**

**AD859**

**AD859 6 Mini-Kits Starter Set**

This is a set of six popular Velleman mini-kits. The set consists of the following kits:
- Flashing LED Sweetheart (FB661)
- Flashing LEDs (FB662)
- Electronic Dice (FB669)
- Siren Sound Generator (FB671)
- IR Light Barrier 1-4m (EB845)
- Running Microbug (GB751)

This is a set of 5 electronic kits. Use the kits to entice your loved ones in special days like Valentine's day. Ideal for soldering beginners. It contains:
- Electronic christmas tree
- Flashing LED sweetheart
- 3D christmas tree
- Electronic candle
- Flashing Red LED star

**AF090 5 Mini-Kits Seasonal Gift Pack**

This is a set of 5 electronic kits. Use the kits to entice your loved ones in special days like Valentine's day. Ideal for soldering beginners. It contains:
- Electronic christmas tree
- Flashing LED sweetheart
- 3D christmas tree
- Electronic candle
- Flashing Red LED star

**AD310 COB for (PB305)**

This COB (chip-on-board) is used in the dind/dong door chime (PB305)

**GB343 COB for (EB590)**

This COB (chip-on-board) is used in the 3 siren & machine gun (EB590)

**GB791 Spare Tag for (GB755)**

This is a spare key tag that can be used with the Electronic key module (GB755). This key tag does not require a battery. Dimensions: 35mm dia.

**GB751 Battery Guard 12V/10A Module**

This module protects the 12V car battery against total discharge by disconnecting the battery load, like a radio or lamp, when the battery voltage drops too low. It switches on automatically after return of the normal voltage. The interrupting voltage is adjustable, approximately 10.4 - 13.3V.

**GB804 Second Accumulator Charger 6-24V Module**

This module should be connected to the output of a lead acid battery charger. It may then be used to distribute the charging current, from the charger, between two identical lead acid batteries (of the same voltage). It has a maximum input current of 8A.

**Specifications:**
- Operating voltage: 6 - 24Vdc
- Dimensions: 87 x 60 x 33mm (with mounting bottom)

**GB787**

This solar charging regulator module is to be connected between a solar panel 12VDC and one or two batteries in order to avoid an overload of the batteries. If two batteries are connected, they are charged separately from each other. The battery with the lowest charging voltage always receives more charging current.

**Specifications:**
- Input voltage: 15 - 30VDC (solar panels)
- Charging current: 16A max
- Dimensions: 87 x 60 x 33mm

**AE954 Solar Charging Regulator - 2x8A Outputs**

Not Included:
- Fuse: (AA952)
- Fuse Holder: (FB471)
GB787  Solar Charging Controller Module
12V 5A
This module is an electronic switch that is used in a solar powered battery charging system. This module electrically connects the solar cells to a 12V lead acid battery while charging.

Specifications:
- Input current: 5A max
- Input voltage from solar cells: 14 to 22Vdc
- LED indicators: Orange LED (charging) Green LED (full)
- Own power consumption: <0.5mA (LED switched on)
- Inrush voltage: battery voltage <13.5Vdc
- interrupting voltage: battery voltage 14.4Vdc
- Dimensions: 72 x 50 x 42mm

Not included:
- 5A Fuse (AA951)
- Fuse Holder: (FB471)

GC109  Universal Battery Charger/Discharger KIT
This is a universal Ni-Cd and Ni-MH battery charger kit. It can be used to charge different Ni-Cd and Ni-MH batteries at two different charging rates.

Specifications:
- Supply voltage: 15Vdc
- Supply current: 800mA
- Charging time: 52 min for quick charge and 14 hours for normal charge
- Automatic discharge & charge cycle
- Usable battery voltages: 1.2V, 2.8V, 3.6V, 4.6V, 6V, 7.2V, 8.4V & 9.6V
- Automatic charge and discharge cycle
- Dimensions: 85 x 78mm

GB772  Battery Charger 13.8V/1.5A Module
This module is a regulated 13.8Vdc power supply with a built-in 1.5A current limiting. It can serve as a 12V lead acid battery charger that starts charging when the battery voltage decreases below 13.8V. With full batteries, the module will switch off and supervise the batteries. Suitable for batteries placed in alarm systems, weekend houses, caravans in order to keep batteries charged without the risk of overcharging. Also suitable as a charging regulator for solar panels.

Specifications:
- Input voltage: 16 - 20Vdc
- Output voltage: 13.8 - 14.2Vdc
- Output current: 0 - 1.5A max
- Dimensions: 71 x 46 x 20mm
- Short circuit and reverse current proof
- Automatic charging interruption with battery voltage of approximately 13.8 - 14.2Vdc

GB782  Converter from 24V-12V 3A Module
This module converts a 24Vdc input voltage to a 12Vdc output. This module may be used in a lorry with 24V batteries to power 12Vdc devices. It requires a ribbed heatsink. It has to be mounted on a heatsink if the maximum power shall be drawn as continuous duty. The module is short-circuit protected and has a built-in thermal circuit breaker which disconnects in case of overheating. It can be used to operate larger car radios, CB radio equipment at a 24V lorry or bus battery.

Specifications:
- Supply voltage: 24 - 26Vdc
- Output voltage: 12Vdc
- Output current: 3A max
- Short circuit proof
- Dimensions: 137 x 62 x 25mm

GB110  Low Cost Universal Battery Charger KIT
This is a low cost charger kit for NiCd and Ni-MH batteries. It has a connector socket for connecting to a mains adapter. It is ideal for charging the batteries of cellular phones, toys, portables devices, etc. The charging current is selectable. LED charge indication.

Specifications:
- Supply voltage: From 6.5V to 21V
- Power supply reverse polarity protected
- Charging LED indicator
- Charging current: 50mA, 100mA, 200mA, 300mA, 400mA (selectable)
- Supply current: same as charging current
- Power supply polarity protected
- Dimensions: 40 x 60mm

GC111  Charger for Lead-Acid Batteries KIT
This lead-acid battery charger/conditioner kit is suitable for charging and maintaining both sealed and open type 6V and 12V lead-acid batteries. Charging current: 0.3 or 1A. The battery can be hooked-up to the unit for an indefinite time, and will be kept in optimal condition. Battery type and charging current are selectable, while the charging process is fully automatic. It needs an 18V/25VA transformer (not inl.)

Specifications:
- Supply voltage: 18Vac
- Supply current: 1.5A
- PCB dimensions: 97 x 140 x 40mm

Electronic kits and modules
> Power supplies

PCB:77x61mm

GB106  Universal Power Supply 5-14VDC/1A
This is an adjustable power supply kit that is suitable for electronic circuits that require a regulated voltage between 5 and 12Vdc, and not more than 1A. It has thermal overload protection.

Specifications:
- Supply voltage: 7-16Vdc

PB210  1.3 to 30V Adjustable Power Supply (Kit)
This is a basic adjustable voltage power supply using the popular three pin regulator, LM317T. You can select any voltage between 1.5V and 30V using a potentiometer. The LM317T is rated at 1.5A so you must use a larger heatsink when drawing high currents. Unregulated AC or DC input via terminal block or power jack.
Suitable transformer for output up to 20Vdc is AA579 or AA750.

**Specifications:**
- Switch-delay: +/- 6 seconds
- DC protection: +1V/-1V
- Max input voltage: 200Vpp + DC
- Max switching current: 10A
- Supply voltage: 220VAC
- PCB dimensions: 55 x 125mm

### GB781 Voltage Converter Module

This module takes a DC input voltage and gives a DC output voltage that is nearly double the input voltage. With an additional linear potentiometer of 4.7k (HB166), the user can limit the output voltage with a preset lower value. The maximum input voltage is 14.5Vdc. The output voltage decreases whenever there is a higher load.

**Specifications:**
- Input voltage: 6-14Vdc
- Output voltage: 11-26Vdc
- Output max: 2A
- Dimensions: 70 x 60 x 23mm

### EB631 Dual Unregulated Power Supply

(Kit) Many power supplies require a dual DC power supply for their operation. It has to be powered by a centre-tapped transformer (not included).

**Specifications:**
- Maximum transformer voltage: 28-0-28Vdc
- Maximum transformer/ output current: 3A
- Dimensions: 48 x 75mm, 40mm height

### GB774 Voltage Converter 24V-12V 1.1A Module

This module takes a 24Vdc input voltage and converts it to a 12Vdc output voltage. This module can be used in a lorry, which has a 24V electrical system, to power 12Vdc devices. Several modules may be connected in parallel to increase the power.

**Specifications:**
- Supply voltage: 24 - 30Vdc
- Output voltage: 12 - 13.8Vdc
- Continuous output current: 0.5A max
- Peak output current: 1.1A max
- Loading capacity: continuous 0.5A
- Dimensions: 60 x 55 x 21mm

### FB571 Power Supply 1.2V to 30V 2A

(Kit) This regulated, adjustable voltage power supply uses a voltage regulator IC. A 24Vac, 2A transformer is needed for this (AC661)

**Specifications:**
- Supply voltage: 24Vac
- Supply current: 2A
- Output current: 1.5A max

### AE987 LED Driver Module 700mA Current Output

This module delivers accurate constant current required by most high power LEDs. It has a built-in rectifier for easy connection to AC source. Ideal for home, disco, stage, education, architectural usage, etc. It is short circuit protected. It has high efficiency due to switch mode principle.

**Specifications:**
- 700mA constant current source
- Input voltage: 6-12VAC/9-18VDC

### GC105 1A Power Supply Kit

This is a compact, adjustable, regulated voltage power supply kit. It is ideal for controlling DC motors and low voltage light bulbs. The LM317 regulator is used. A transformer (AD816 and AD817) and heatsink (AB008) are required. This small power supply provides a regulated voltage, adjustable between 1.5 & 35V at 1A.

**Specifications:**
- Max supply voltage: 39Vdc or 28Vac
- Supply current: 1.5A
- Power rating: 15W max
- PCB dimensions: 52 x 30mm

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**GB781 Voltage Converter Module**

**EB631 Dual Unregulated Power Supply**

**GB774 Voltage Converter 24V-12V 1.1A Module**

**FB571 Power Supply 1.2V to 30V 2A**

**AE987 LED Driver Module 700mA Current Output**

**GC105 1A Power Supply Kit**

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**www.electronics123.co.za**
AD895  1A Power Supply Module

This is an adjustable, regulated voltage power supply. It can be used to power projects, experiments and save on batteries. It is short-circuit, thermal and overload protected. 

Specifications:
- Supply voltage: 35Vdc or 24Vac
- Supply current: 1.2A
- Power consumption: 15W with a large heatsink
- Output voltage range: 1.2 - 30Vdc
- Output current: 0 - 1A
- Min output voltage: 1.2V
- Max output current: 1A
- Very low ripple (80dB rejection)
- Short-circuit, thermal & overload protection
- Max dissipation: 15W (with heatsink)
- Dimensions: 52 x 30 x 35mm

AD853  1W / 3W High-Power LED Driver

This kit is designed to drive high power LEDs (not included) with a constant electric current. It delivers accurate constant current required by most high-power LEDs. It has a built-in rectifier for easy connection to AC source. It doesn't require a heatsink. 

Specifications:
- Supply voltage: 9 - 18Vdc or 6 - 12Vdc
- Supply current: 650mA max

GB108 DC Power Supply 3 to 30V / 3A

This kit is meant to be used as an auxiliary or permanent power supply for electronic circuits that requires a regulated DC voltage between 3 and 30V. The output current of the power supply mustn't exceed 3A. 

Specifications:
- Supply voltage: 9 to 30Vdc
- Max output current: 3A
- Output voltage: adjustable from 3 to 30V, stabilized
- Output ripple voltage: 0.5mV
- Short-circuit protected
- Overload protected
- Dimensions: 130 x 91 x 50mm

GB752 Potential Transformer Adjust 1.5A Module

This variable DC voltage power supply is ideal for low power loads that require a fixed regulated voltage. A ribbed heatsink is required to cool the module. The input voltage must be at least 3V higher than the adjusted output voltage. The adjusted output voltage is stabilized or short-circuit protected. 

Specifications:
- Input voltage range: 6 - 28Vdc
- Output voltage range: 3 - 15Vdc
- Output current: 1.5A max
- Short circuit proof
- Power dissipation: 10W with a heatsink, 3W without a heatsink
- Dimensions: 70 x 55 x 25mm

Electronic kits and modules > Circuit Protection

This kit is a stereo speaker protection device. It is connected between the amplifier’s speaker output terminals and the speakers. It prevents switch-on clicks by delaying the speakers’ connections directly after switch-on. It disconnects the speakers as soon as a direct current flows through the speaker cable.

Specifications:
- Power supply: 220Vac
- Max input voltage: 200Vpp
- Max current: 10A
- Switch-delay: +/- 6 seconds
- DC protection: +1V/ -1V
- Max input voltage: 200Vpp + DC
- Max switching current: 10A
- Supply voltage: 220Vac
- PCB dimensions: 55 x 125mm
**Anti Speaker Plop**

This kit is used to prevent any annoying plop from occurring in speakers when switching the car booster (GC037), on and off. In addition it provides protection for the MOSFET transistor and the car battery.

**Specifications:**
- Soft start of the switched mode power supply
- Switch-on delay of the speakers: +/- 2 seconds
- Immediate switch-off of the speakers when switching off the boosters
- Voltage monitor: switch off at +/- 10V
- PCB dimensions: 57 x 51mm

**Electronic kits and modules**

**Signal Generators > Fixed Frequency**

**FB665** Signal Generator

This is a 1kHz signal generator kit. A 50k on-board trimmer potentiometer is used to adjust the amplitude (level) of the output signal.

**Specifications:**
- Supply voltage: 9V battery (not included)(EB160)
- Output signal frequency: 1kHz (fixed)

**FB666** Metronome

This kit includes a miniature speaker and LED-beat-indicator. Adjustable volume and beats/minute by using potentiometers. On/off switch board.

**Specifications:**
- Power supply: 9V battery (not included)
- Dimensions: 60 x 43mm

**FB621** Signal-Injector

(Kit) Universal square-wave sound generator with approximately 1000Hz basic frequency and a great number of harmonic waves which lead up to VHF-range. The signal can be listened to through a highly ohmic earphone or could be amplified for loudspeakers through an amplifier.

Operating voltage: 6 to 12Vdc
- Frequency: approximately 1000Hz
- Board dimensions: approximately 25 x 24mm

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**Op-Amp Function Generator 9VDC**

**EB596**

(Kit) A very simple circuit to generate square, (pseudo) sine and triangle waveforms in the 6-6000Hz audio range. It uses a quad op-amp LM348 and passive components. The sine wave is made by wave shaping. It requires a 9V battery like (EB160).

**Specifications:**
- Power supply: 2.4-6Vdc
- Supply current: 0.17-0.23mA

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**4 Animal Sounds Cat Hen Cow Dog Kit**

**EB591**

(Kit) This COB (Chip-on-board) PCB contains four animal sounds: switch 1: Cat, switch 2: Hen, Switch 3: Cow and switch 4: Dog. Battery holder that takes 2 AA cells is included. 4 x 1.5 size AA Alkaline Cells (AB748) and twin flex wire: (AE025)

**Specifications:**
- Supply voltage: 2.4-6Vdc
- Supply current: 0.17-0.23mA

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**4 Train Sounds Kit**

**AA232**

The kit imitates four train sounds: whistle-blowing, chugging, level crossing bell and the clackety clack of a train crossing a bridge. Just 4 switches and 4 components to add.

**Specifications:**
- Supply voltage: 2.4-6Vdc (battery holder included)

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**Electronic Cricket**

**FB664**

This kit simulates cricket sounds, it automatically comes on when it gets dark. The kit’s light sensitivity is adjustable, so is the repetition rate (time between two cricket sounds) and the tone of the cricket sound.

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**Square Wave Oscillator 5-18VDC**

**AA516**

This kit, based on the popular 555 timer IC, generates 6 preset frequencies for 1Hz to 100kHz. It has a wide operating voltage range and even visual indication of the output.

**Specifications:**
- PCB size: 78x50mm
- Supply voltage: 5-18Vdc

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Steamer Noise with horns

Fog Horn 5W

Audible electronic siren can generate

The kit produces very life-like wheezing and hissing sounds of a streamer. The noises can be released individually by means of a switch.

Specifications:
- Operating voltage: 4.5 to 6 Vdc
- Loudspeaker connection: 8 ohm, 1 W

FB641 Steamer Noise with Steam Whistle+Bell

GB603 Steam engine sound generator with whistle

The kit generates the sound of a vintage steam engine. The speed and volume are adjustable. It is great for model railroads, radio plays, stage and as a gadget.

Specifications:
- Power supply: 9V battery (not included)
- Dimensions: 65x78x30 mm

FB604 Electronic Dog Barking 9 Volt

(Kit) Produces sound of a barking dog almost realistically and loudly. For one loudspeaker, >1 W. The barking is stored on a special voice-synthesizer-IC. The sound is adjustable, i.e. from a little yelp to a big naughty dog. An additional audio amplifier is recommended.

Specifications:
- Operating voltage: 9 Vdc

AB683 Siren Bomb & Rifle Sounds

This kit can generate 8 different sounds that include siren, bomb and rifle sounds. It makes use of a sound generator CMOS LSI chip.

Specifications:
- Power supply: 9V battery (not included)
- Dimensions: 60x10x25 mm

Electronic kits and modules > Sound Effects > Siren Sound Generators

Warship siren clear decks generates the sound of a 3 sirens & machine gun

Electronic Watchdog

A circuit that produces a natural sounding barking dog with a sensitive “ear” to everything that comes near it. It reacts to surrounding sounds by barking.

Specifications:
- Power supply: 2 x 8 VAc or 9 - 12 Vdc
- Supply current: 500 mA
- Choice of two different dog sounds
- Reacts to surrounding noise with adjustable sensitivity
- Speaker output: 2 W @ 4 Ohm
- PCB dimensions: 142 x 75 mm

(Kit) Do you want to know what noise with a 110 dB sound pressure sounds like? This kit generates 108 to 111 dB measured at 1 meter.

Specifications:
- Supply voltage: 5-15 Vdc
- Supply current: 400-500 mA
- Dimensions: 32 x 55 x 114 mm

EB354 Electronic Watchdog Kit

Sirens & Machine Gun Kit

This kit is a sound generator that produces all the classic noises that children love. The chip-on-board contains 4 sounds; fire engine siren, police siren, ambulance siren and machine gun sound. 2 LEDs will be flashing while sound is being produced.

Specifications:
- Supply voltage: 2.4-3.6 Vdc (2x 1.5 V AA cells, not included)
- Supply current: 10-16 mA
- Loudspeaker: 1W/8 ohm (included)

EB590 3 Sirens & Machine Gun Kit

(Kit) Audible electronic siren with a tone of the American police siren.

Specifications:
- Operating voltage: 12 V
- Loudspeaker: 8 to 32 Ohm
- Power: 3 to 15 watt, depending on the loudspeaker

FB527 FBI siren 12V 15W

(Kit) Warship siren clear decks for action. In rapid intervals sounds a shortly swelling tone: Uiiit... Uiiit...

Specifications:
- Power: 3 to 15W, depending on the operating voltage
- Operating voltage: 6 to 12 V
- Loudspeaker: 8 ohm

FB538 Destroyer Siren

Fog Horn 5W

(Kit) Generates a deep, noisy sound similar to the fog-horns of ships.

Specifications:
- Operating voltage: 4.5 to 12 V
- Power: 5 W max. depending on the voltage
- Loudspeaker: 8 ohm
- Frequency of tone: adjustable
- Loudspeaker connection: 8 Ohm
- Board dimensions: 44 x 20 mm

FB523 Fog Horn 5W

Mini Signal Horn 6 to 12 V

(Kit) With a mini loudspeaker (approx. 14 x 11 mm) this device emits a tone of approximately 3000 Hz. Ideal for fitting it into miniature models, as signal unit,
This kit generates 4 different sounds: police siren, fire brigade, emergency vehicle and laser gun. The sound pitch is adjustable. **Specifications:**
- Power supply: 9V battery (not included)
- Dimensions: 60x40mm

(Kit) A surprisingly loud siren for such a simple circuit. Uses voltage controlled oscillator. 1/2 watt, 8 ohm speaker supplied. 9V operation. Ideal to attach to an alarm system which requires a siren sounder module. Recommended plastic enclosure (AA037), not included.

**Electronic kits and modules**

**Sound Effects > Chime and Melody Generators**

FB601 Electronic Melody - Coo Coo Waltz

The kit plays the famous waltz melody in high-quality sound. The melody will start through a push-button and stops automatically. An additional audio amplifier is recommended.

**Specifications:**
- Loudspeaker (Included)
- Operating voltage: 3Vdc

PB305 Ding/Dong Door Chime Kit

This kit generates the sound of a traditional ding-door chime. **Specifications:**
- Operating voltage: 3 to 4.5Vdc
- Loudspeaker: 4 to 8 ohm (not included)
- Additional amplifier (not included)

FB671 Siren Sound Generator

VO433 Ding-Dong Sound Generator

FB671

This kit generates 4 different sounds: police siren, fire brigade, emergency vehicle and laser gun. The sound pitch is adjustable. **Specifications:**
- Power supply: 9V battery 9 (not included)
- Dimensions: 60x40mm

(Kit) Produces classic ding dong sound which plays twice when triggered. It has low power consumption. It also has an on-board pushbutton. The speaker is included.

**Features:**
- Classic dingdong sound
- Plays dingsong sequence twice when triggered
- Attractive, compact design
- On-board push button
- Input for external pushbutton
- Low power consumption

**Specifications:**
- Speaker: 8 ohm
- Power supply: 9Vdc bat
- Current consumption: 55mA (Active)
- Dimensions: 70 x 97 x 30mm

EB589 16 Door Chimes Kit

(Kit) Sixteen door chime tunes cycling with each keypress. LED fluctuates according to the sound level. Designed for high quality melody products.

**Specifications:**
- Loudspeaker (Included)
- Operating voltage: 3Vdc

15 to 25 seconds.

**Specifications:**
- Operating voltage: 3 to 4.5Vdc
- Loudspeaker: 4 to 8 ohm (not included)
- Additional amplifier (not included)

EB599 9V Siren

FB677 Multi-Tone Chime

The device is a simple and electronic way of generating electronic tones. This kit is primarily intended for use as a replacement for the traditional mechanical doorbell. It can also be used for many types of applications. The number of tones may be selected to a maximum of three, each of which is output one after the other. Volume can also be set to the desired level. The existing bell transformer can be used as a power supply.

**Specifications:**
- Power supply: 6 to 9Vac or 4.5Vdc battery (3x 1.5AA cells, not included)
- Supply current: 200mA

**Electronic kits and modules**

**Audio Amplifiers > Preamplifiers**

PB283 Music Box Engine 3VDC Kit

(Kit) This is the equivalent of a mechanical music box. It has a range of tunes that are contained in an IC.

**Specifications:**
- Power supply: 2x 1.5V AA cells (not included)
- Supply current: 20mA
- Loudspeaker: 1W/ 8 ohm (not included)

FB659 6 Melody Generator

(Kit) After pressing a push-button, the melody generator plays one of the 12 stored melodies in succession. The melodies always plays for about

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Preamplifier with module

Universal Mono Pre-Amplifier is a universal, low noise preamplifier for use as a preamplifier for audio applications where there is insufficient input signal amplitude.

Specifications:
- Power supply: 10-30Vdc
- Supply current: 10mA
- Adjustable output level: 40dB max
- Frequency range: 20Hz to 20kHz
- max input signal: 40mV
- PCB dimensions: 30 x 44mm

This kit has been developed for use as a preamplifier for audio applications where there is insufficient input signal amplitude.

Specifications:
- Power supply: 10-30Vdc
- Supply current: 10mA
- Adjustable output level: 40dB max
- Frequency range: 20Hz to 20kHz
- max input signal: 40mV
- PCB dimensions: 30 x 44mm

Parabolic-Microphone

This kit is a universal low noise microphone able to receive faint sounds over a hundred meters. It is ideal for observing animals.

Specifications:
- Supply voltage: 9Vdc
- Power consumption: 230mA max
- Microphone: sensitive electret microphone
- Output impedance: 8 ohm for headphone or loudspeaker
- PCB dimensions: 55x55mm

Universal Stereo Preamplifier

This kit is a universal, low noise stereo preamplifier.

Specifications:
- Frequency: 40Hz-30kHz
- Output impedance: 1k ohm
- Power supply: 10-30Vdc
- Supply current: 5mA
- Max input voltage: 50mVRms
- PCB dimensions: 44 x 65mm

Electronic kits and modules

> Audio Amplifiers > Power Amplifiers

200W Mono / Stereo Amplifier

An electric guitar cannot be connected to just any amplifier or audio installation, this preamplifier has been designed for this purpose and provides you with a headphone output, allowing you to practice without disturbing others.

Specifications:
- Power supply: 9V battery (not included)
- Adjustable tone
- Adjustable input sensitivity
- Low noise
- Headphones output: 2 x 50mW/ 32 Ohm max
- Dimensions: 70 x 30 x 105mm
- Power Supply: 240V/50Hz
- Output power: 200W
- Input Impedance: 1k Ohm
- RMS output power: 200W
- Input sensitivity: 1mV
- Total harmonic distortion: 0.01% at 1kHz
- Signal-to-noise ratio: 120dB
- Stereo channel separation: 85dB
- Input Impedance: 300kohm
- Input sensitivity: 300mV,
550mV or 1V switchable
- Thermal protection: 1 max
- Short-circuit and overload protection: max 10 sec
- Power supply: +28Vdc - 28Vdc max
- Consumption: 4A max
- Dimensions: 210x 85x 64mm

AB352 2 x 30W Audio Power Amplifier Module

This small, stereo (2 channels) amplifier has a peak music output power capability of 30W per channel using 4 ohm speakers. The IC is thermally and short-circuit protected.

**Specifications:**
- Dual supply voltage: 12 - 0 - 12Vac
- Supply current: 2A
- Frequency: 7Hz - 60kHz
- Input impedance: 150kHz
- Music power output: 2x 30W/ 4 ohm
- RMS output: 2x 15Wrms/ 4 ohm or 2x 10Wrms/ 8 ohm
- Total harmonic distortion: 0.07% (1W/ 1kHz)
- Channel separation: 70dB
- Frequency response: 7Hz to 60kHz
- Signal-to-ratio: 98dB
- Input sensitivity: 300mV
- Overload and circuit protection
- Dimensions: 70 x 50mm

FB617 Amplifier 1 Watt

(Kit) Small universal amplifier with a peak sound capacity of 2W. A modern, low cost amplifier for many purposes. It works with an 8-pin DIP IC. The design is very small so that the device can be integrated into many devices.

**Specifications:**
- Operating voltage: 6-9Vdc
- Current consumption: max 380mA
- Input sensitivity: 50mV
- Output load: 8 ohm
- Frequency range: 20 to 20kHz
- Sensitivity: approx 80mV
- Dimensions: 41 x 24mm

PCB:107x167mm

AD545 100W Subwoofer Kit with Mono Power Amp.

This subwoofer kit contains all the electrical parts that are required to build your own compact, powerful, high quality subwoofer.

**Specifications:**
- Power supply: 230Vac

GB753 Universal 3.5W Amplifier Module

This is a mono, audio, power amplifier module that is capable of driving a loudspeaker at 3.5W peak. You can adjust the volume with a 10k, linear potentiometer.

**Specifications:**
- Supply voltage: 6 - 16Vdc

GB759 40W Power Amplifier Module

This mono, audio, power amplifier module is capable of driving a loudspeaker at 40W. You can adjust the volume with a 10k, linear potentiometer.

**Specifications:**
- Supply voltage: 6 - 16Vdc
- Supply current: 800mA
- Frequency: 40Hz - 20kHz
- Input sensitivity: <80mV
- Music power: 12W with 16V at 4 Ohm loudspeaker
- Loudspeaker connection: 4 - 16 Ohm
- Output load impedance: 4 - 16 Ohm

AB896 3W Mono Amplifier

The design of this kit make use of the TDA7267A from ST microelectronics. It is suitable for a wide range of low voltage, audio amplifier applications.

**Specifications:**
- Supply voltage: 6-15Vdc
- Supply current: 500mA max
- Max output power: 3Wrms
- Gain: 32dB
- Short-circuit protected
- Speaker impedance: 8 ohm
- Voltage gain: 32dB (40x)
- Frequency response: 50-20 000Hz
- Dimensions: 42x50mm, 20mm height

**Features:**
- Compact size
- No additional heatsink required
- Single supply
- Wide supply range
- Excellent protection

GB805 Universal Amplifier 12W Module

This mono, audio, power amplifier module is capable of driving a loudspeaker at 12W peak. The volume can be adjusted with a 10k linear potentiometer. The module is a cast humidity-proof and shake-proof. The casting compound and the module's enclosure consists of a special, heat-conductive plastic. No additional heatsinks are needed. The module is protected electronically against over heating and overload.

**Specifications:**
- Supply voltage: 6 - 16Vdc
- Supply current: 1.5A
- Frequency: 20Hz - 25kHz
- Input sensitivity: 300mVpp
- Output load impedance: 4 - 8 ohm
- Connectable loudspeaker: 4 - 8 ohm
- Dimensions: 70 x 45 x 29mm

AB110 1W Stereo Audio Amplifier - KA2209 Kit

(Kit) This is designed for portable radios etc. This stereo amplifier kit makes use of the KA2209 or TDA2822.

**Specifications:**
- Supply voltage: 1.8-9Vdc
- PCB Dimensions: 35x52mm

This small stereo (2 channels) amplifier has a peak music output power capability of 1W with a 2W power amplifier. It works with an 8-pin DIP IC. The design is very small so that the device can be integrated into many devices.

**Specifications:**
- Operating voltage: 5-15Vdc
- Current consumption: 5mA max
- Gain: 20dB
- Short-circuit protected
- Speaker impedance: 8 ohm
- Voltage gain: 20dB (40x)
- Frequency response: 50-10000Hz
- Dimensions: 35x20mm, 20mm height

**Features:**
- Compact size
- No additional heatsink required
- Single supply
- Wide supply range
- Excellent protection

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This small stereo amplifier kit is constructed with the TDA1521 IC. It has a peak music output power capability of 30W per channel using 4 ohm speakers. The IC is thermally and short-circuit protected.

**Specifications:**
- Power supply: 2 x 12Vac
- Supply current: 2A
- Frequency response: 7Hz to 60kHz
- Music power output: 2 x 30W/4 Ohm
- Total harmonic distortion: 0.07% (1W/1kHz)
- Channel separation: 70dB
- Signal-to-noise ratio: 98dB
- Input sensitivity: 300mV/150k ohm
- Overload and short-circuit protection: max 1h
- Dimensions: 70x50mm
- Not included:
  - Centre-tapped transformer (AC661)
  - Potentiometers (2 x AC284)

This small mono, audio amplifier module is designed around the TDA2003 IC. It is capable of driving 7W peak input a 4 ohm load. It has an on-board heatsink. The IC is completely thermally and short-circuit protected.

**Specifications:**
- Supply voltage: 8 - 18Vdc
- Supply current: 0.5A
- Idle current: 7-15mA
- Gain: (50x) or 34dB max
- Frequency range (-3dB): 20-100 000Hz

This mono audio power amplifier kit is built around the National Semiconductor LM380. The kit is a mono 50Watt rms power amplifier kit that makes use of the ST Electronics TDA7294.

**Specifications:**
- Power supply: +/-30Vdc dual supply
- Supply current: +/-2A
- Input impedance: 10k ohm
- Frequency response: 16Hz-100kHz
- Not included:
  - heatsink (AB267 or larger)

This kit is a mono MOSFET audio power amplifier that meets the standards for quality and robustness. The final output stage is carefully designed for Class A operation, though without unnecessary power loss.

**Specifications:**
- Power supply: 230Vac
- Peak music power output: 300W/4 ohm or 200W/8 ohm
- Rms power: 155W/4 ohm, 100W/8 ohm
- Harmonic distortion: 0.005%
- Input sensitivity: 1Vrms
- Signal-to-noise ratio: 112dB
- Frequency response: 3Hz - 120kHz
- Speaker switch on delay and protection
- Thermal and short circuit protection
- Frequency: 3Hz - 120kHz
- Dimensions: 270 x 90 x 140mm
- Weight: 4.8kg

This kit may be configured as a stereo or mono amplifier. It can be used as a universal, robust and compact audio power amplifier.

**Specifications:**
- Rms output power: 2x100W/4 ohm
- Rms mono-bridges power: 200W/8 ohm
- Total music output: 400W
- Harmonic distortion: 0.003% at 1kHz
- Signal-to-noise ratio: 96dB
- Stereo channel separation: 76dB
- Input impedance: 22 kohm
- Input sensitivity: 150mV, 300mV or 950mV switchable
- Supply voltage (8 ohm): 35 to 40Vdc & -35 to 40Vdc/2.5A
- Supply voltage (4 ohm): 25 to 30Vdc and -25 to 30Vdc/5A
- Dimensions: 350 x 62 x 85mm

This 200W mono amplifier kit is excellent value for money. Only discrete components are used in this design. The output section of the amplifier uses epitaxial darlington transistors.

**Specifications:**
- Supply voltage: 2 x 25 - 30Vac
- Supply current: 2A
- Frequency response (-3dB): 3Hz - 200kHz
- 200W music power @ 4 ohm load
- 100Wrms power @ 4 ohm load
- 70Wrms power @ 8 load ohm
- Distortion: 0.02% @ 1kHz/10W
- Signal-to-noise ratio: 115dB
- Input sensitivity: 0.6Vrms
- PCB dimensions: 107 x 62mm

This kit is a stereo class AB audio power amplifier built around the TDA2005. It is ideal for hi-fi applications.

**Specifications:**
- Supply voltage: 8-18Vdc
- Supply current: 2A
### EB608  Introduction to Class AB Amplifiers Kit

This kit is a 1 Watt class AB, mono, audio power amplifier kit. It is quick and easy to use modern amplifier.

**Specifications:**
- Supply voltage: 9-18Vdc
- Supply current: 750mA max
- Input impedance: 10k ohm

### AB100  TDA2002/TDA2003 Amplifier 8W Kit

This kit is a mono audio power amplifier using 1 TDA2002 or TDA2003.

**Specifications:**
- Operating voltage: 6 to 18Vdc
- Supply current: 1.2 max
- Input sensitivity: 100mV/40dB gain
- Loudspeakers: 2 to 8 ohm
- Output power: 4 Wrms/8 ohm, 12Vdc
- Frequency: 20-40 000Hz
- Dimensions: 51x51x41mm

### AB100  Low Voltage LM386 Audio Amp 0.5W Kit

This kit designed to be used as a small power audio amplifier or as a building block project where a battery is powered, variable gain audio amplifier is required, for example, radio amplifiers, ultrasonic and server drivers, voltage converters etc. LM386 data sheet included

**Specifications:**
- Power supply: 4 to 12Vdc

### EB627  18W Audio Power Amplifier Kit

This kit contains the essential components to build a low voltage, high power mono 18W Bridge Tied Load (BTL) amplifier.

**Specifications:**
- Supply voltage: 8-18Vdc
- Supply current: 18W
- Output power: 18W
- Input resistance: 20-40k ohm
- Frequency response: 50Hz-20kHz (-3dB) 20Hz-40kHz (-6dB)

### PB268  10W + 10W Stereo Amplifier 8 - 28V Kit

(Kit) This is a standard data book application circuit using a minimum of external components. The kit uses the TDA2009 which is a classAB dual-hi-fi audio amplifier IC designed for quality stereo applications.

**Specifications:**
- Supply voltage: 8-28Vdc
- PCB size: 77x 43mm

### EB643  1W Stereo Amp +DC Vol Cont TDA7053A Kit

(Kit) The TDA7053 is an integrated stereo audio power amplifier with DC volume control in a 16-pin dual-in-line plastic package. It is designed for use in TVs and monitors but it is also suitable for battery-operated equipment. Power supply: 4.5 to 15Vdc.

### PB207  Low Voltage LM386 Audio Amp 0.5W Kit

This kit designed to be used as a small power audio amplifier or as a building block project where a battery is powered, variable gain audio amplifier is required, for example, radio amplifiers, ultrasonic and server drivers, voltage converters etc. LM386 data sheet included

**Specifications:**
- Power supply: 4 to 12Vdc

### AA487  Stereo 1 Watt Amplifier Kit

The kit uses 2 LM386N ICs on 1 PCB. It has independent volume control as well as an on board jumper to change between a gain of 20 and 200.

**Specifications:**
- Power supply: 4 - 12Vdc
- Requires speakers rated 3W or more

### EB622  3W Stereo Amplifier - BA5406 Kit

(Kit) A simple stereo, 3 watt per channel, audio power amplifier. It is based on the BA5406 power amplifier monolithic IC.

**Specifications:**
- Power supply: 6-12Vdc
- Supply current: 150mA max
- Input impedance: 10k ohm

### EB669  7W Mono Audio Amplifier

This amplifier kit is capable of delivering 7 Watt peak into a 4 ohm load. It has an on-board heatsink. The IC is completely thermally and short circuit protected. It can be powered with a single voltage power supply.

**Specifications:**
- Power supply: 8 - 18Vdc
- Supply current: 0.5A
- Frequency response: 20Hz to 20kHz
- RMS output: 3.5W/4 Ohm or 2W/8 Ohm
- Total harmonic distortion: 0.05% (1W / 1kHz
- Signal / noise ration: 86dB
- Input sensitivity: 40mV/150 kohm
- Overload and short-circuit protected
- Dimensions: 55 x 35mm

### EB207  Low Voltage LM386 Audio Amp 0.5W Kit

This kit designed to be used as a small power audio amplifier or as a building block project where a battery is powered, variable gain audio amplifier is required, for example, radio amplifiers, ultrasonic and server drivers, voltage converters etc. LM386 data sheet included

**Specifications:**
- Power supply: 4 to 12Vdc

### EB609  25W Audio Amplifier using LM1875 Kit

This kit contains the essential components to build a hi-fi amplifier using the LM1875 IC.

**Specifications:**
- Power supply: 6-12Vdc
- Supply current: 1.2 max
- Input sensitivity: 100mV/40dB gain
- Loudspeakers: 2 to 8 ohm
- Output power: 4 Wrms/8 ohm, 12Vdc
- Frequency: 20-40 000Hz
- Dimensions: 51x51x41mm

### EB622  3W Stereo Amplifier - BA5406 Kit

(Kit) A simple stereo, 3 watt per channel, audio power amplifier. It is based on the BA5406 power amplifier monolithic IC.

**Specifications:**
- Power supply: 6-12Vdc
- Supply current: 150mA max
- Input impedance: 10k ohm

### FB580  Amplifier 8 Watt

(Kit) A hi-fi amplifier with one IC. The amplifier could be connected to signal sources with at least 160mV output voltage (eg crystal record players,
200W Amplifier

(Kit) Sing along with your favourite music, hook-up the unit between your CD-player, MD-player or any other line-level source and your amplifier. It has an adjustable microphone level and vocal reduction switches that reduces original vocals on most stereo recordings.

Specifications:
- Power supply: 9V battery (not included)
- Supply current: 16mA
- Dimensions: 100 x 84 x 25mm

FB590 Karaoke

GB590 TDA7052 Amplifier 1Watt Kit

The kit is a 1 Watt peak mono amplifier using the Phillips TDA7052 IC. It is a useful building block where a battery powered audio amplifier is required.

Specifications:
- Output power: 250mW rms / 8 ohm using 12V dc supply
- Supply voltage: 3-15Vdc
- Supply current: 300mA max
- Frequency bandwidth: 20-20000Hz

VR366 Digital Echo Chamber - Audio Effect Kit

(Kit) This is a great effect tool. It can be used for various audio systems, karaoke, P.A toys or just for fun. It has an onboard microphone and audio amplifier. 4 adjustments for MIC or input level, volume or output level, echo delay time feedback. 9V battery snap included.

Specifications:
- Power supply: 9V
- Power consumption: 150mA max
- Speaker output: 500mW
- 4 adjustments for MIC or input level, volume or output level, echo delay time and feedback
- 40kB SRAM for low distortion & good sound quality
- On board microphone & audio amplifier
- Line-in & Line-out connection
- Dimensions: 85 x 70 x 20mm

FB575 Robot voice 9 to 12 VDC

The kit distorts the introduced speech so that it sounds like the voice of a robot. Adjustable effects. The device should be connected between the microphone and amplifier (or tape recorder).

Specifications:
- Operating voltage: 9 to 12Vdc
- Power consumption: 250mA max
- Frequency range: 50-5000Hz
- Output power: 120W max
- Separating frequency: 3kHz/12dB
- Loudspeaker impedance: 4 - 8 ohm
- Dimensions: 59 x 45 x 20mm

AB114 Stereo Amp/Tone Control - TDA1524A Kit

This kit provides up to 20dB of voltage for both channels, +/-15dB of bass and treble control, left/right channel balance and selectable loudness contour. It is able to drive most power amplifiers.

Specifications:
- Supply voltage: 12V battery/15Vdc adapter
- Supply current: 50mA min
- Frequency response (-1dB): 10 - 50 000Hz
- Output voltage: 3Vrms
- Input impedance: 300 ohm
- Dimensions: 67 x 114 x 25mm

GB876 Crossover Network 2-Way 120W Module

This 2 way cross over network can be used inside speaker cabinets to connect 4 - 8 ohm loudspeakers. For 1 bass speaker and 1 midrange.

Specifications:
- Output power: 120W max
- Separating frequency: 3kHz/12dB
- Loudspeaker impedance: 4 - 8 ohm
- Dimensions: 85 x 70 x 20mm

AB098 TDA7052 Amplifier 1Watt Kit

The kit is a 1 Watt peak mono amplifier using the Phillips TDA7052 IC. It is a useful building block where a battery powered audio amplifier is required.

Specifications:
- Operating voltage: 24 to 36V
- Frequency range: 20 to 20000Hz

AB098 TDA7052 Amplifier 1Watt Kit

The kit is a 1 Watt peak mono amplifier using the Phillips TDA7052 IC. It is a useful building block where a battery powered audio amplifier is required.

Specifications:
- Operating voltage: 24 to 36V
- Frequency range: 20 to 20000Hz

AD856 Volume and Tone Control Preamplifier

(Kit) When using an audio power amplifier, you always need a volume control and preferably also a tone control. This kit has stereo audio signal input and output connections.

Specifications:
- Supply voltage: 2 x 12Vac
- Supply current: 100mA
- Frequency response (-3dB): 3Hz - 50kHz

Electronic kits and modules > Audio Signal Modifiers

GB590
PB271  Crossover Network
3-Way 120 Watt Module
This module is to be used for one bass speaker, mid speaker and one or two tweeters, 4 - 8 ohm. Separating frequency approximately 800/5000Hz. The rate of change of attenuation is 12dB/octave. Dimensions: 67 x 65 x 37mm

AD555  Voice Changer - Audio Effect Kit
This kit is used to electronically change a normal speech audio signal. It is ideal for using at parties, plays, making recordings, prank phone calls, games, etc. It detects a person's voice with the on-board microphone.

Features:
- Make your voice sound like a robot
- Add vibrato effect
- Use the pitch buttons to alter the voice sound

Built-in microphone and power amplifier with volume control, just add a speaker

Specifications:
- Power supply: 9V battery (not included)
- Supply current: 300mA
- Speaker line output
- Max output power: 1.5W
- Dimensions: 77 x 46mm

AB322  Electronic Stereo Volume Control
This is a stereo audio volume controller kit. It has a built-in IR-receiver that enables one to control the volume using an IR remote control.

Features:
- IR-controlled electronic adjustments
- Controls the volume of line-level audio signals suitable for PC or hi-fi applications
- Small enough to be built into existing units

Specifications:
- Supply voltage: 9-12Vdc
- Supply current: 100mA
- Volume range: 0dB - 78dB (62 steps)
- Stereo line level in/out: 2Vrms max
- Range: 0dB - 78dB
- 'Mute' function with auto fade-in
- Volume: up/down/mute
- Dimensions: 82 x 35mm, 15mm height
- Optional: 2-channel IR remote transmitter kit (AB299)

EK008  Voice Recording Module 300s via USB
You can record a voice message for 300 seconds. The module incorporates and supports 4 switches and 2 sensors simultaneously. It is ideal for transferring custom messages for various applications.

Specifications:
- Power supply: 9V battery (not incl.)
- Standby current: <=0.2mA
- PCB size: 45mm x 25mm

VO243  Voice Recording Module 10-35sec
This message recorder has a record time of 10 to 35 seconds (which can be adjusted). It also encompasses an onboard microphone and a speaker. The external trigger input plays the message. You can create a funny voice by adjusting the speed of the message playback.

Specifications:
- Power supply: 4.5V battery
- Power consumption: 150mA (during playback)
- Adjustable sampling rate: 5-12kHz
- Speaker output: 500mW max
- Signal/ noise ratio: 34dB
- Record time between 10 & 35 sec
- On-board microphone
- Speaker: 57 Ohm
- Line-out to drive external amplifier
- External trigger input to play message
- 3 x AA battery holder included
- Using the speed adjustment, a funny voice can be created

PCB dimensions: 65 x 50 x 20mm

Electronic kits and modules
> Audio Signal Recorders

EK009  Voice Recording Module 300s via USB +PIR

Specifications:
- 300 seconds of recordable voice messages
- Works up to 4 switches and 2 sensors simultaneously
- Ideal for transferring custom messages for different applications
- Adjustable sensitivity for PIR sensors
- Assembled and tested

AF075  20 Second recording module with 9V battery
This 20 Seconds recording module with 9V battery
Connector is fully assembled and tested. All you need to do is add a 9V Battery. Record: Press and hold "Record" switch. LED indicator turns on and start recording. Release switch to finish recording, and LED turns off. Play: Press "Play" switch to play complete message once.

Specifications:
- Electret microphone for recording incl.

AO674  Voice Recording Module 20s - Card Type
Surprise your friends and family with a voice recording when they open up their Christmas card, Birthday Card or any other
type of greeting card. This recording module allows you to record for 20 seconds and it can be pasted (self-adhesive backing) into a card. When the card is opened your message will be played. You can record your own custom 20 second message with the built in microphone. The module is pre wired with a speaker and battery. All that is left for you to do is to record a message and paste the module in your card!

**Electronic kits and modules > Light Effects > Light Art**

**GB599** SMD Flashing Heart

This **kit** flashes 30 super-bright, red LEDs in a variety of patterns. The patterns are read from a look-up table in a micro-controller.

**Specifications:**
- Power supply: 9V battery (not included)
- Supply current: 20mA
- Dimensions: 100 x 80 x 33mm

**GB602** Traffic Light

A very educational or demonstrative **kit**. It resembles traffic lights as used on roads. It operates realistically with an adjustable delay.

**Specifications:**
- Power supply: 9V battery (not included)
- Supply current: 22mA
- ON/OFF switch
- Dimensions: 50 x 35 x 115mm

**GB595** 3D Christmas Tree

This **kit** uses 25 LEDs, bright coloured pumpkin shape, Halloween gadget. It has a random flash effect that simulates a flickering candle.

**Specifications:**
- Power supply: 9V battery (not included)
- Supply current: 20mA
- Dimensions: 100 x 80 x 33mm

**GB596** Halloween Pumpkin

The **kit** uses 25 LEDs, bright coloured pumpkin shape, Halloween gadget. It has a random flash effect that simulates a flickering candle.

**Specifications:**
- Power supply: 9V battery (not included)
- Supply current: 20mA
- Dimensions: 100 x 80 x 33mm

**VO348** Animated LED Smiley

(Kit) This is a miniature size decorative gadget. It uses 2 LEDs that flash alternately. It is great to attract attention.

**Features:**
- Mini gadget
- 2 LEDs flash alternately
- Great attention grabber ideal for introduction to SMD technology
- Some extra parts are supplied

**Specifications:**
- Power supply: 3Vdc Lithium button cell (e.g CR2025)

**AB362** Riding Santa Module

This module is a 126 LED multicolour animated Christmas gadget. There is no need to remove the battery when using an external supply.

**Specifications:**
- Power supply: 9 - 12Vdc
- Supply current: 48mA
- Dimensions: 80 x 145mm

**EB607** Flashing Star 8 - 12VDC Kit

(Kit) This LED flashing heart uses 6 LEDs that alternates in flashing. It is an ideal introduction to SMD (Surface mounted device) technology. Some extra parts are supplied in case others get lost or damaged.

**Specifications:**
- Power supply: 3Vdc lithium button cell
- Supply current: 7mA
- Dimensions: 49 x 44 x 8mm

**EB858** Electronic Christmas Tree

Christmas was never so cheerful! This **kit** really makes the difference. It uses 16 blinking LEDs.

**Specifications:**
- Power supply: 9V battery (not included)
- Supply current: 4mA max
- Dimensions: 60 x 100 x 25mm

**FB661** Flashing LED Sweetheart

(Kit) Show your love in an original way and also that your love still beats faster for him or her. The kit uses 28 LEDs to form 2 blinking hearts, one within the other.

**Specifications:**
- Power supply: 9V battery (not included)
- Supply current: 8mA
- Dimensions: 60 x 60 x 30mm

**FB662** Mini LED Flashing Heart

**GB598** SMD Happy Face

(Kit) This is a miniature size decorative gadget. It uses 2 LEDs that flash alternately. It is great to attract attention.

**Features:**
- Mini gadget
- 2 LEDs flash alternately
- Great attention grabber ideal for introduction to SMD technology
- Some extra parts are supplied

**Specifications:**
- Power supply: 3Vdc Lithium button cell (e.g CR2025)

**GB601** 3D Christmas Tree

This **kit** uses 16 flashing red LEDs. Nonetheless, there are also additional green and yellow LEDs for you to customize your tree.

**Features:**
- 16 flashing red LEDs
- Extra green and yellow LEDs provided to customize your tree
- Can be hung on and fed through wires

**Specifications:**
- Power supply: 9V battery (not included)
- Supply current: 8mA
- Dimensions: 80 x 88 x 102mm

**FB663** Flashing LED Halloween Pumpkin

This **kit** resembles a pumpkin shape, Halloween gadget. It uses 25 LEDs, bright coloured pumpkin shape, Halloween gadget. It has a random flash effect that simulates a flickering candle.

**Specifications:**
- Power supply: 9V battery (not included)
- Supply current: 20mA
- Dimensions: 100 x 80 x 33mm
Riding Santa

Alternating Flasher

Flashing light effects for Xenon Flasher 6VDC is a multicolour bell.

De Luxe Christmas Tree

Mini Traffic Light

This kit is a miniature size decorative christmas gadget. It can be hung on the ceiling, xmas tree or be worn as a badge, hence pin supplied.

Features:
- 6 LEDs flash alternately
- Great attention grabber

Not included:
- LEDs
- Resistors (DB046)

Electronic kits and modules > Light Effects > Flashing Lights

LED Animated Bell

The kit is a multicolour bell. There is no need to remove the battery when using external supply. Operating voltage of 12V makes it easier to use in cars, lorries and trucks. On/off switch included.

Specifications:
- Power supply: 9 to 12Vbattery alkaline (not included)

Stroboscope with Xenon Lamp

This mains voltage flasher has an adjustable flashing period of 0.9 - 13.5 seconds. It can be used for electric light bulbs of up to 300W/230V

Specifications:
- Supply voltage: 110 - 240Vac
- Minimum power load: 15W
- Dimensions: 71 x 50 x 41mm

N:B 230V being used, consult an electrician

This is a 126 LED multicolour animated chritsmas kit. There is no need to remove the battery when using an external supply.

Specifications:
- Power supply: 9 - 12Vdc
- Supply current: 48mA
- Dimensions: 80 x 145mm

Flashing Heart Kit

The kit flashes 30 super bright LEDs in a variety of patterns. The patterns are read from a look-up table in micro-controller. Electrically, both patterns are the same; it is only the look-up table and the physical layout of the LEDs that are different.

Specifications:
- Power supply: 9 to 12Vdc
- Supply current: 40mA
- Dimensions: 143 x 81mm

Ideal introduction to SMD technology

Some extra parts are supplied in case others get lost or damaged

Specifications:
- Power supply: 3V Lithium button cell
- Supply current: 5mA
- Dimensions: 45 x 41 x 8mm

Kit) Flashing light effects for discos. Make your own snapshots and lighting effects.

Specifications:
- Supply voltage: 220-240Vac
- Power rating: 3 - 10W
- PCB dimensions: 87 x 65mm

This kit is useful for different applications such as model construction and recreational purposes. Adjustable flashing speed.

Specifications:
- Power supply: 9V battery
- Supply current: 8mA
- Dimensions: 30 x 35 x 15mm

This kit builds the circuit to trigger a high voltage xenon flashtube using a 6Vdc input from a power supply. The flash rate is fixed but the manual explains how you can vary it by changing resistor and/or capacitor values.

Kit)

Specifications:
- Operating voltage: 6 -16V/dc
- Max load: 0.3A/output
- Flashing speed: 1- 3 per second (adjustable)
- Board dimensions: 45 x 22mm
Flash LED 230VAC

(Kit) A flash circuit with one red LED which can be operated directly at 230VAC. Flash frequency: 2Hz. Usage: control-lamp for devices and alarm systems, start control for machines etc.
Specifications:
- Operating voltage: 220 - 240Vac approx.
- Flash frequency: approx. 2Hz
- Board dimensions: 25 x 23mm approx.

GB593 Dual Superbright Flashing Red Lights

This kit may be used for emergencies, warning signs, as an eye-catcher, etc. It has 2 super bright red LEDs. It can be set to turn on when it’s dark, with adjustable sensitivity.
Specifications:
- Power supply: 9V battery
- Dimensions: 55 x 32 x 40mm

FB638 Flash LED 230VAC

GB592 Dual White LED Stroboscope

(Kit) It uses two super bright white LEDs that have a powerful flash effect. Great to use at parties and to observe moving parts.
Features:
- Powerful flash effect
- Great for parties, scale models etc
- Slow/fast select & speed adjustable trimmer
- Speed adjustable: 1 & 60 flashes per second
- on/off switches
Specifications:
- Power supply: 9V battery (not included)
- Supply current: 40mA max
- Dimensions: 55 x 32 x 40mm

AD125 Disco Stroboscope Light 230VAC

(Kit) Flashing-stroboscope with U-flash tube and large charging capacitor for bright flashes. The speed of the flash is adjustable, approximately 1 to 10Hz. Ideal for light shows, discos or special effect photography.
Specifications:
- Supply voltage: 230Vac
- PCB dimensions: 60 x 62mm

FB620 Jumbo LED Flasher

GB590 Flasher 5-12V 1A Module

Electronic flasher module for glow lamps that can consume up to a maximum of 1A current.
Specifications:
- Operating voltage: 5 - 12Vdc
- Lamp current: 1A
- Flashing rate: 2 - 4Hz (120 - 240/min)
- Dimensions: 25 x 22 x 17mm

SB011 Disco / Warning Strobe Light 240V Kit

(Kit) The best of all light effects, previously available as professional equipment for discos, now available for beginner constructors at a very reasonable price.
Specifications:
- Supply voltage: 220Vac
- Strobe frequency: 0.3 - 3Hz

AE961 2 Channel Hi-Power Led Flasher

This kit has 7 flash effects, adjustable speed, memory for last selected effect, detachable LED PCBs to mention only a few. It can be used in alarm systems, hazard flasher, attention grabber, disco effect etc.
Specifications:
- Supply voltage: 12Vdc
- Outputs: 3A/ channel
- Dimensions: Mai board (65 x 33 x 20mm) LED board: (18 x 33 x12mm)

This kit makes use of the popular 555 IC. The IC is used as an astable oscillator to generate a square wave.
Specifications:
- Supply voltage: 5 - 15Vdc
- PCB dimensions: 28 x 34mm

SB011 Stroboscope

This kit is ideal for decoration, models etc.
Specifications:
- Supply voltage: 6 - 12Vdc
- Flashing rate: 120 to 240 times/ min
- LED diameter: 8mm
- PCB dimensions: 20 x 55mm

GB803 Flasher 5-12V 1A Module

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The kit is suitable as a flasher for alarm systems or for disco units using 230V light bulbs. The flash rate is adjustable between approximately 0.5Hz up to 10Hz.

**Specifications:**
- Supply voltage: 230Vdc
- Max output load: 880W
- PCB dimensions: 35 x 35mm

N.B 230V being used, consult an electrician

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**4-Channel Running Light 230VAC + 12VDC**

**Kit** This digital 4-channel running light controls 4 different 230Vac glow lamp outputs, one after the other, and in regular intervals. The flash rate is adjustable. It works with fullwave control.

**Specifications:**
- Supply voltage: 12Vdc together with 230Vac
- Output power per channel: 100W/230Vac
- Board dimensions: 58 x 44mm

N:B 230V being used, consult an electrician

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**4 Channel Running Light**

This running light kit is the perfect addition to your existing lighting system if you want to create the kind of effects used in a disco. The speed of this module can be adjusted manually. All the outputs are equipped with a LED indication.

**Specifications:**
- Power supply: 240Vac
- Load current: 2A max. fused
- Max channel output power: 400W/100VA
- Flashing rate: 0.2 to 3 times/sec
- Dimensions: 100 x 83 x36mm

**Flasher Kit**

A 12V battery powered xenon tube flasher. The flash rate is adjusted by a trimpot. The frequency of the flash rate can be adjusted from about once every 2 seconds to about 4 times per seconds. The kit is useful for runners or cyclists to aid their visibility.

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**Zenith Flasher 12VDC Kit**

This kit is the perfect solution for running lights in groups or small groups of lamps. It runs asynchronously and synchronously. The running speed is adjustable in asynchronous mode and fixed in synchronous mode. It only runs in both directions, but it also flashes with two groups of lamps (flip flop) and with all the lamps at the same time. The four light effects follow each other automatically. It can be synchronised to mains or work asynchronously. The running speed is adjustable in asynchronous mode and fixed in synchronous mode. It suppresses radio interferences in synchronous mode.

**Specifications:**
- Supply voltage: 220Vac
- Output power: max 400W/output
- Dimensions: 110 x 85 x 35mm

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**5 Ultra Bright LED Flasher Kit**

Five LEDs flash on and off in a pseudo-random or sequential mode, depending on whether the slide switch is open or closed.

**Specifications:**
- Supply voltage: 2 - 3.6Vdc
- Supply current: 10 - 16mA
- Dimensions: Mother board 32 x 43mm

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**4-Channel Running Light 230V Module**

This running light makes four lamps or lamp groups light up one after the other at regular intervals and switch off again. The running speed is adjustable. Ideal for incandescent bulbs of up to 300W max./channel.

**Specifications:**
- Supply voltage: 230Vac
- Number of channels: 4
- Power load/channel: 300W
This kit uses 8 LEDs. Different LED running effects are selectable (Prog push button).

**Specifications:**
- Power supply: 9V battery (not included)
- Supply current: 18mA
- Dimensions: 95 x 40mm

**Features:**
- Smooth fade effects
- Wide-range effect speed adjustment
- High power MOSFET output
- Memory for last selectable effect
- Easy up/down effect selection

**Specifications:**
- Supply voltage: 110 - 125Vac or 220 - 240Vac 50/60Hz
- Max output current: 2.5A
- Max output power: 170W at 115Vac or 350W at 230Vac
- Dimensions: 65 x 57 x 25mm

**This kit is a plug-in for the light control system base unit kit (GC075). It has a non volatile memory for last set light intensity. Encompasses lots of safety features to make lamp last longer. It has a transformer protection in case of defective light source. Easy pushbutton and LED status indication.**

**Specifications:**
- Power supply: 10 - 15Vdc/9A max
- 256 intensity levels/channel
- LED PWM frequency: 82Hz
- Dimensions: 80 x 70 x 23mm

**Features:**
- Easy up/down effect selection
- Memory for last selectable effect and speed
- Smooth fade effects
- Random colours etc.

**Specifications:**
- Supply voltage: 110 - 125Vac or 220 - 240Vac 50/60Hz
- Max output current: 1.3A
- Max output power: 150W at 120Vac or 300W at 230Vac
- Dimensions: 67 x 57 x 25mm

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- Power supply: 10 - 15Vdc/9A max
- 256 intensity levels/channel
- LED PWM frequency: 82Hz
- Dimensions: 80 x 70 x 23mm

**Features:**
- Easy up/down effect selection
- Memory for last selectable effect and speed
- Smooth fade effects
- Random colours etc.

**Specifications:**
- Supply voltage: 110 - 125Vac or 220 - 240Vac 50/60Hz
- Max output current: 1.3A
- Max output power: 150W at 120Vac or 300W at 230Vac
- Dimensions: 67 x 57 x 25mm

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- Memory for last selectable effect and speed
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- Max output current: 1.3A
- Max output power: 150W at 120Vac or 300W at 230Vac
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- Easy up/down effect selection
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- Smooth fade effects
- Random colours etc.

**Specifications:**
- Supply voltage: 110 - 125Vac or 220 - 240Vac 50/60Hz
- Max output current: 1.3A
- Max output power: 150W at 120Vac or 300W at 230Vac
- Dimensions: 67 x 57 x 25mm

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**Specifications:**
- Power supply: 10 - 15Vdc/9A max
- 256 intensity levels/channel
- LED PWM frequency: 82Hz
- Dimensions: 80 x 70 x 23mm

**Features:**
- Easy up/down effect selection
- Memory for last selectable effect and speed
- Smooth fade effects
- Random colours etc.
AE590 RGB Controller Module

This module is suited for both incandescent bulbs and LEDs. It has an up-down level adjustments for each output. It has a smooth fade colour effects and a wide-range effect speed adjustments. The memory for last selected effect and speed gets stored.

Specifications:
- Power supply: 10-15VDC/9A max
- RGB output: 3 x 3A
- LED PWM freq: 82Hz
- 256 intensity levels/channe
- Dimensions: 80 x 70 x 23mm

GC079 Relay Output Module for (GC075)

This is a 230Vac relay output switch that is suited for both resistive and inductive output loads. This kit is a pulg-in unit for the light control system-base unit kit (GC075).

Specifications:
- Supply voltage: 110 - 240Vac 50/60Hz
- Max output current: 2.5A/220Vac
- Dimensions: 65 x 57 x 30mm

GC069 Light Computer

This is a light effects controller kit that has 16 different programmes and seven triac outputs. It can be used for party lighting, discotheques advertisement lighting, signalling, etc. To enhance the spectacle further, an unlimited number of circuits can be connected together to work synchronously. Moreover, two programs are provided which are specially adapted to operate two light computers in cascade.

Specifications:
- Supply voltage: 8 - 9Vac or 12Vac
- Supply current: 250mA
- Supply voltage for the lights: 24 - 240Vac
- Current /output:1.5A max
- Number of programs: 16
- Dimensions: 134 x 79 x 35mm

GC059 Quad Triac Switch Card

(Kit) Relays are usually used to switch AC voltages by means of an electronic control, however, when switching occurs too frequently or too quickly the life time of the relay's contact point becomes shortened. This kit is the perfect solution for this as it replaces the relays with the triacs.

Specifications:
- Supply voltage: 9Vdc
- Supply current: 220mA
- Dimensions: 78 x91x25mm

AD283 USB-Controlled DMX Interface

This kit is used together with a PC to control DMX-512 devices. The DMX-512 protocol was developed with the purpose of controlling up to 512 lighting devices that are used in theatres and discos.

Features:
- Connected and powered through USB
- 512 DMX channels with 256 levels each
- Windows 98SE or higher compatible
- DLL included to write your own software

Specifications:
- Power supply: powered by the USB port stand-alone testing: 9V battery (not included)
- 512 DMX channels
- Each channel has 256 output levels
- Dimensions: 106 x 101 x 44.5mm

AD854 DMX-Controlled Relay Switch

This kit allows the user to control a relay switch by means of the well known DMX512 protocol. It is used to turn an electrical device on or off.

Specifications:
- Supply voltage: 12Vac
- Supply current: 100mA
- Relay switch contact rating: 8A/230Vac
- Stand alone test mode

AD857 Interface

FB670 Simple One Channel Light Organ

This kit receives its input from a loudspeaker. It modulates a lamp according to the music signal at the input. The input is optically isolated from the loudspeaker. Adjustable sensitivity.

Specifications:
- Input sensitivity: 2W to 60W
- Max load: 120W at 120Vac and 230W at 230Vac
- Dimensions: 60 x 41mm

FB670 Simple One Channel Light Organ
This kit uses four high-intensity LEDs and a microphone. It lights and reacts simultaneously to every sound. It may be used for different funny and practical applications such as to indicate when the doorbell or telephone is ringing.

**Specifications:**
- Power supply: 9V battery (not included)
- Supply current: max 12mA
- Dimensions: 40 x 55 x 35mm

### Electronic kits and modules

> Displays > Audio Signal Level Indicators

This audio power meter kit has a 10 level LED scale and can measure up to 2000Watts. It does not require a special power supply as it is powered directly by the speaker output.

**Specifications:**
- Min input voltage: 11Vrms (in low power mode)
- Max input voltage: 130Vpeak (in high power mode)
- Current consumption: 25mA
- Luminous intensity of LED: 8 to 120000 cousins
- Dimensions: 120 x 40 x 28mm
- PCB dimensions: 37 x 68mm

### Kit

**Stereo VU-Meter 10 LEDs**

- Operating voltage: 230Vac
- Power handling: up to 250W
- Input sensitivity: 2 - 60W

**Specifications:**
- Power supply: 3V CR2032 battery (not incl.)
- Volume indication: 5 LEDs light up sequentially
- Dimensions: 87 x 50 x 25mm

### Kit

**Mono VU-Meter 10 LEDs**

- Power supply: 12Vdc
- Supply current: 20mA max
- Input impedance: 22k ohm
- Dimensions: 46 x 92 x 15mm

### Kit

**Pocket VU Meter with Enclosure**

- Power supply: 3V CR2032 cell (not included)
- Supply current: 10mA max.
Electronic kits and modules

> Displays > Digital Panel Meters

**EB601** General 3 1/2 Digit LCD Panel Meter Kit

*(Kit)* Make this general purpose 3 ½ digit LCD panel meter into your own voltage or current meter to measure voltage input from a transducer. The LCD segment of the PCB may be cut off and mounted separately.

**Features:**
- Easy panel mounting
- Large and clear display
- High-grade ABS casing

**Specifications:**
- 3 digit LCD display
- Supply Voltage: 1 x 1.5V LR44 cell
- Temperature Measuring Range: -50°C to 70°C
- Accuracy: 1°C

**Dimensions:**
- Display: 16 x 35.5mm
- Panel: 48 x 28.5mm, 15mm height
- Panel Cut Out: 45.5x 26mm

**PB208** LED 3 1/2 digit panel meter kit 5VDC Kit

*(Kit)* Make this general design 3 ½ digit LED panel meter into your own voltage or current meter. Or customize it to measure input from a transducer. Two PCBs allow low-profile end on viewing. All instructions to assemble and operate meter are included. Power supply: 5Vdc

**Features:**
- 60 LEDs sound star
- Responds to sound and music in a VU-meter fashion
- Built-in microphone
- Adjustable sensitivity
- Multiple units enhance the effect
- Great for parties, events, trade-shows etc

**Specifications:**
- Power supply: 9 -12Vdc or 9V alkaline battery
- Supply current: 200mA

**AB502** Thermometer Digital Panel -50 to 70deg C

This is a 3 ½ digit, LCD, panel voltage meter kit. It is also easier to read and much more precise than its analogue equivalent. It can easily be used with a sensor or adapter circuit that gives a voltage output. A digital meter is a lot easier to read and much more precise than its analogue equivalent. Moreover, this panel meter is comparable to an analogue one because a regulated power supply is not needed, in many cases, an ordinary 9V battery is sufficient. As a result of the compact meter construction, there will never be problems finding a place to install it. It can easily be combined with an adapter circuit or sensor.

**Specifications:**
- Supply voltage: 8 -15Vdc or 9V battery
- Supply current: 60mA max
- PCB dimensions: 50 x 72mm

**GB659** Multifunctional Up/Down Counter

This kit comes in handy for people counting, part counting, score keeping etc. The count may be obtained through on-board pushbuttons or by external pulses.

**Features:**
- Very practical for counting people or parts, scorekeeping etc.
- Count up/down
- Count input through on-board pushbuttons or by external pulses
- Display modes: normal or time
- An internal oscillator allows time measurement
- A memory function constantly compares the current value with a preset value and activates an output for as long as both are equal
- Self diagnostic at power up
- Comes with easy board-to-wire connector

**Specifications:**
- Power supply: 9 -12Vdc
- Supply current: 150mA
- Counter input voltage range: 3 -12Vdc
- Dimensions: 125 x 75 x 18mm
This is a low cost, 4 digit, presettable, down counter with output and reset. The count input can be used for both high and low speed counting applications.

**Specifications:**
- Supply voltage: 9 - 12Vdc
- Supply current: 50mA max
- Display: red, 4-digit, 7-segment LED
- Display dimensions: 19 x 50mm

This is an up counter with a 3-digit LED display. It has two push-button switches, one for count and the other for reset. Both buttons are debounced to enable accurate counting and reliable reset.

**Specifications:**
- Supply voltage: 6 - 9Vdc
- Supply current: 200mA max
- Display: 3-digit, 7 segment, red LED display

**Features:**
- Count input through on-board pushbuttons or by external pulses
- Display modes: normal or time
- An internal oscillator allows time measurement
- Programmable pre-set value with equal output
- Selectable input debounce delay

**Electronic kits and modules**

**> Displays > Clocks**

**AF095**
- LED Clock with Slow On Dimmer

**EB644**
- 4 Digit Preset Down Counter + Outp. Kit

**EB639**
- 4-Digit Up / Down Counter Kit

**PB300**
- 3-Digit LED Counter Kit

This is an attractive LED clock kit. This digital clock kit makes use of a PIC16F84 microcontroller. It can be set for either 12 or 24 hour display format.

**Specifications:**
- Supply voltage: 12Vdc
- Supply current: 1A max

**Features:**
- Programmable pre-set value with equal output
- Selectable input debounce delay

This kit makes a nicely animated rolling time and date display. Graphic display with 35 LEDs. Select hours, minutes, month or day with 'select' and enter the values with 'set'.

**Specifications:**
- Power supply: 9 - 12Vdc
- Supply current: 20mA max
- Backup battery: 9V battery (not incl.)
- Dimensions: 67 x 89 x 35mm

This is a 12/24 hour clock system, with a Celsius and Fahrenheit temperature readout. It can be easily mounted on a wall.

**Specifications:**
- Power supply: 12Vac
- Power consumption: 250mA max
- Back up battery: 3V
- Power consumption on back up battery: 1mA

**Features:**
- Automatic time base selection
- Internal time base with fine tuning adjustment
- Select 12h-24h mode for the time display
- Clock display time in case of power failure

This is a digital, 7 segment, red LED display, clock kit. An attractive enclosure is supplied with the kit. The time base is selected: internal or mains-frequency (50/60Hz) controlled.

**Features:**
- Power supply: 9Vac or 9Vdc, recommended adaptor (GB836 not incl.)
- Backup batteries: 3x AA 1.5V cells (AB748 not incl.)
- Dimensions: 92 x 45 x 101mm

**Electronic kits and modules**

**> Displays > Message Displays**
5-In-1 Emergency

- Introduction to LCDs. Learn Luminous Letters LCD Mini Message kit
- Amaze your friends by rolling message
- Programmable kit
- Bezel Enclosure for it is a miniature message board (GC082).

N:B There are no electronic components that are sold with it.

With this kit it is possible to mount any capital letter of the alphabet or any digit from 0-9. The concrete description of each letter and of each digit is enclosed. It includes bright LEDs. With each kit, it is feasible to mount any digit and putting several kits together gives the user the capability of building luminous name plates, sign boards, house numbers etc. The printed wiring board could be equipped also with LEDs of any other colour.

Specifications:
- Power supply: 2x 1.5V AAA batteries
- Dimensions: 160 x 26 x 24mm

Specifications:
- Power supply: 2x AAA batteries
- Message memory: 46 characters
- Dimensions: 100 x 38 x 32mm

This kit is a miniature message board making use of 16 characters, 1 line LCD display. A message scrolls across from right to left. The scrolling speed is adjustable. It enables the user to add pauses during scrolling.

Specifications:
- Power supply: 2x AAA.1.5V cells
- Message memory: 46 characters
- Dimensions: 100 x 38 x 32mm

(Full Kit) This miniature message board has a built-in message editor. The user can add scrolling pauses to the message. It can be used at exhibitions, for advertising, greeting visitors at the front door etc.

Features:
- 16 characters backlit LCD display
- 124 character EEPROM memory message
- Message scrolls with adjustable speed
- Built-in RS232 interface for easy messages uploading and displaying

Specifications:
- Power supply: 9Vdc
- Supply current: 100mA
- Message memory: 124 character EEPROM
- Dimensions: 115 x 43 x 75mm

This enclosure is specially made for the programmable message board kit (GC082).

EB641 Introduction to LCDs Kit

(Kit) Introduction to LCDs. Learn how to connect a 2 x16 LCD to a parallel port. First this kit will show you how to write keystrokes from the PC keyboard to display on the LCD. It will show you how to process the data.

GB605 Mini LCD Messageboard

This kit is a miniature message board making use of 16 characters, 1 line LCD display. A message scrolls across from right to left. The scrolling speed is adjustable. It enables the user to add pauses during scrolling.

Specifications:
- Power supply: 2x AAA.1.5V cells
- Message memory: 46 characters
- Dimensions: 100 x 38 x 32mm

(Full Kit) Amaze your friends by waving the wand to make the message appear. The message seems to be floating in the air. The wand has preprogrammed messages and you also have the ability to enter your own 7-character message.

Features:
- Excellent visibility due to high intensity red LEDs
- Low power consumption
- Auto-power off
- Applications: novelty gadget, emergencies, event greetings etc.

Specifications:
- Power supply: 2x AAA batteries (not incl.)
- Dimensions: 160 x 26 x 24mm

(Full Kit) Create your own moving message. This kit uses a 35-LED graphic display. The message can be up to 16 characters long. Adjustable scrolling speed.

Specifications:
- Power supply: 9 - 12Vdc
- Supply current: 20mA max
- Backup battery: 9V battery (not incl.)
- Dimensions: 67 x 89 x 35mm

Electronic kits and modules
> Displays > Road sign
LED Chevron Arrow

**Features:**
- 28 LEDs are used for the animation
- Adjustable animation speed
- Supply: external supply or battery operation
- Optimised-circuit for long battery life
- Front panel included for easy fixation
- Speed and animation are selectable through the front panel
- On board on/off switch
- 10 different animation effects
- Memory for the last set animation

**Specifications:**
- Power supply: 9-15Vdc or 9V battery
- Current consumption: 10 to 40mA
- 28 bright 3mm Red LEDs
- Dimensions: 64w x 130h x 16d mm

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**VO432 LED Chevron Arrow**

**Features:**
- Four difficulty levels
- Video and audio output
- Adjustable brightness
- Auto power off

**Specifications:**
- Power supply: 3x 1.5V AA batteries
- PCB dimensions: 75 x 140mm
- Error indication: optical + acoustical
- Board dimensions: approx. 45 x 20mm

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**Electronic kits and modules > Games and Fun Stuff**

**EB846 Classic TV Game (PAL)**

This kit is used to play a tennis type ball game on TV. A one player or two player mode may be selected. It has four difficulty levels.

**Features:**
- Four difficulty levels

**GB587 Wheel of Fortune**

This kit is a 10-LED wheel of fortune. Push the button to start the spinning action. The spinning speed gradually decreases and 1 LED will remain lit when it stops.

**Features:**
- Push the button to start the spinning action
- Spinning speed gradually decreases
- Low power consumption
- Auto power-off

**Specifications:**
- Power supply: 9V battery
- Supply current: 19mA

---

**PB221 Dice with LED Display using PIC16C54 Kit**

(Kit) One of the most popular electronic kits ever is the LED dice. The software programming instructions are available on the internet site provided on the information page supplied with the kit. Power supply: 9V battery.

**Specifications:**
- Power supply: 3x 1.5V AA cells (AB748)
- Supply current: 45mA max
- Dimensions: 50 x 65mm

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**PB222 LED Dice with slowdown 9VDC Kit**

The kit uses 7 LEDs to simulate the rolling of a dice after the roll button is pushed. It has a slow down feature so you can see the rolling of the dice slowing down until it stops. The box is included with the kit. Power supply: 9Vd.

**Specifications:**
- Power supply: 3x 1.5V AA batteries
- PCB dimensions: approx. 65 x 140mm
- Battery voltage pulsating
- Audio and visual indication
- Battery operation
- Adjustable animation speed
- On board on/off switch
- Number of LEDs: 7
- Supply current: 75mA
- Dimensions: 55 x 30 x 35mm

---

**FB723 Electrostat Apparatus**

(Kit) The device produces from 3 to 4.5V battery voltage pulsating high-voltage pulses of approximately 80 to 500V.

**Specifications:**
- Power supply: 9V battery (not incl)
- Supply current: 8mA
- Auto power off
- Dimensions: 55 x30 x35mm

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**FB558 Deftness Game**

(Kit) The objective of the game is to pass a small wire loop through a thread wire, with a lot of bends and obstacles. The person who touches the thread wire with the wire loop, will release an acoustic and optic signal. Operating voltage: 9 to 12V.

**Specifications:**
- Operating voltage: 9 - 12V/dc
- Aluminum case
- Auto power off
- Dimensions: 70 x 110 x 40mm

---

**GB585 Electronic Decision Maker**

This kit helps making difficult YES or NO decisions. Ideal for the indecisive. Simply push the button to start the flashing and it will gradually decrease, in the end only one LED will remain lit.

**Specifications:**
- Power supply: 9V battery (not incl)
- Supply current: 8mA
- Auto power off
- Dimensions: 55 x 30 x 35mm

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**FB523 Brain Game Kit (4.5V)**

This kit, using 4 LEDs and 4 Push buttons, can provide hours of fun. The aim of the game is to repeat a pattern that is generated at random. The game can be played visually and audible or visually only. It features four difficult levels which can be selected at startup. The replay speed gradually increases during the game, to make it more challenging. It has low power consumption and it is microprocessor-controlled.

**Specifications:**
- Power supply: 3x 1.5V AA cells (AB748)
- Supply current: 45mA max
- Dimensions: 50 x 65mm

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**FB660 Electronic Wheel of Fortune**

(Kit) After releasing the push button, the light signal rotates quickly at the 10 LEDs, slowly down and then stops randomly at one of the LEDs. During operation, all LEDs shine except that LED that just receives the signal. Operating voltage: 9 to 12Vdc
GB591  Shaking Dice

Unlike other dice kits, this one gives you the full pleasure of a dice. You don’t need to push any buttons, but just to shake it like an ordinary dice.

Features:
- No push buttons required, just give it a shake
- Slowly rolls to a stop and flashes the last combination
- Microprocessor-controlled oscillator circuit.

Specifications:
- Power supply: 9V battery
- Auto power off
- Dimensions: 42 x 60mm

This kit is an electronic dice with LED indication. It rolls out slowly when the push button is released.

GB589  Quiz Table

(Kit) Up to four players can compete. LED indicates first button pushed. Two units can be daisy-chained for eight players.

Specifications:
- Power supply: 9V battery (not incl)
- On/off switch
- Dimensions: 110 x 78 x 28mm

GB597  Love Tester

Use this kit and check your love life! Each partner holds one end of the PCB, then they join hands, watch the meter go.

Features:
- 10-LED readout plus audible ‘love-level’ indication
- Power switch included

Specifications:
- Power supply: 9V battery (not incl)
- Dimensions: 105 x 80 x 25mm

A very good brain game kit, supplied with a stylish cover and knobs. This kit has the same objectives as (EB523) except for the additional cover and knobs.

Specifications:
- Power supply: 3x 1.5V AAA cells
- Dimensions: 84 x 67 x 41mm

GB591  Stairway to Heaven 9VDC Kit

(Kit) A game of skill to turn on the stairway of 6 LEDs as the bi-colour LED flashes. Introduces the user to several electronics basic circuits with a surprisingly difficult game to play. Press the switch when the bi-colour LED is green and the chain of LEDs will gradually light up. But if you press it when the LED is red then your hardwork will be undone, you will have to start from scratch. An enclosure is included. Power supply: 9V battery (not incl.)

Features:
- 10-LED readout plus audible ‘love-level’ indication
- Power switch included

Specifications:
- Power supply: 9V battery (not incl)
- Dimensions: 105 x 80 x 25mm

GB588  Roulette

This kit uses 37 LEDs. It generates a spinning sound when active. There is a winner tune for each colour. Push button operation.

Specifications:
- Power supply: 3x AA batteries
- Auto power off
- Low power consumption
- Dimensions: 91mm dia. x 105mm

PB301  Rotating Roulette LED 9V Kit

(Kit) Ten LEDs are arranged in a circle. Pressing the switch turns one LED on to simulate a roulette ball spinning in the wheel. A slowdown circuit gradually brings the ball to a stop. The circuit uses the versatile 4017 IC and a voltage controlled oscillator circuit. Power supply: 9Vdc

GB589  Quiz Table

(Kit) Board games provide an excellent source of pleasant and healthy entertainment. The results of a dice can sometimes be doubted due to cheating but there are no doubts about the results displayed on this electronic dice. Encompasses two fully independent dice. You have a choice of playing with one or two dice. The displays are switched off automatically after 30 seconds in order to save battery power.

Specifications:
- Power supply: 8 - 12Vdc
- PCB dimensions: 70 x 76mm

GB588  Quiz Table

(Kit) Board games provide an excellent source of pleasant and healthy entertainment. The results of a dice can sometimes be doubted due to cheating but there are no doubts about the results displayed on this electronic dice. Encompasses two fully independent dice. You have a choice of playing with one or two dice. The displays are switched off automatically after 30 seconds in order to save battery power.

Specifications:
- Power supply: 8 - 12Vdc
- PCB dimensions: 70 x 76mm

www.electronics123.co.za
With this high frequency detector, it is possible to locate small bugging devices that are active in the room, computer or telephone. The sensitivity of this detector is set so that only powerful, >50mW, bugging devices, with a transmitting radius larger than 150m, are detected. It is used to detect bugging device signals in the frequency range 1 to 200 MHz. Requires 9V battery. The display has 1 LED which indicates the turn-on control and another which indicates receipt from one transmitter.

**Specifications:**
- Operating voltage: 9V/DC block battery
- Current consumption: <10mA
- Frequency range: 0.1MHz - 2.4GHz
- Display: LED
- Dimensions: 102 x 61 x 26mm

**Features:**
- Powerful LED flashes when phone rings
- The unit features a relay output if connected to a 12Vdc power supply
- Relay output: continuous or on/off to the rhythm of ringing of the telephone
- Enclosure included

**Specifications:**
- Power supply: 12Vdc/100mA
- Output contact(NO): 1A max
- 10 000mcd LED
- Connects to PTSN line
- RJ11 connector
- Dimensions: 80 x 55 x 35mm
Electronic kits and modules

Electronic kits and modules > Home and Environment

AE938 Soil Humidity Sensor 12VDC (Module) This sensor switches your garden irrigation pump or the magnetic valve on when the soil is dry and switches off when there is enough humidity in the soil. The measuring head has to be buried into the ground at the depth where it shall measure and has to be connected with the basic device via a cable. Approx. 2m of cable is included, the sensor cable may, however, be prolonged up to 20m with normal 2-pole cable. The device is operated by means of a commercial plug power supply (12 V/DC stabilized, > 130 mA, jack plug 3.5 mm). If the garden shall be irrigated at certain times of the day or weekdays only, then put a commercial timer before the plug power supply and program it accordingly. The soil humidity sensor starts to operate when it receives current from the power supply.

Specifications:
- Operating voltage: 12Vdc stabilized, 130mA
- Display: 3 LEDs on/off/pause
- Time delays: 18 - 30 mins
- Switching threshold: continuously adjustable
- Soil humidity sensor: dia. 30 x 64mm
- Basic device: 72 x 50 x 28mm

AE976 High-Power Ultrasonic Generator (Module) To drive away wild animals such as martens, rodents (e.g. out of carpents, lofts, camper vans), wild boars, deer, etc. (from gardens, farmlands, etc.). The device produces an enormously loud, pulsating and aggressive ultrasonic sound of about 21 kHz which is not audible to most people, but represents a considerable annoyance for wild animals which, therefore, try to avoid it.

Specifications:
- Operating voltage: 6VDC
- Current consumption: 5mA
- Acoustic range: >200m
- Ultrasonic frequency: approx. 21kHz
- Sound pressure: 100dB
- Angle of radiation: >120°
- Current consumption idle approx. 0.005mA
- Mark space ratio: approx. 0.6 sec On, approx. 6 sec rest
- Dimensions: 190 x 70 x 33mm

AE951 Ultrasonic Power Cannon 12VDC

This device can be used to chase away wild animals such as martens, wild boars, deers etc from gardens, farmlands etc. The loudspeaker emits a pulsed ultrasonic sound which have an acoustic range of up to 300m with a tube placed upon (not incl.)

Specifications:
- Operating voltage: 12 - 14.4 VDC
- Power consumption: 150mA max
- Frequency: 22 kHz
- Pulse sequence: 5 sec.
- Dimensions: 60 x 46 x 20mm

PB004 Mosquito Flea and Tick Repeller 9 VDC

The kit emits an adjustable whistling sound. This sound irritates mosquitoes and chase them away. These ultrasonic sounds also repel other fleas.

Specifications:
- Power supply: 9Vdc
- Input current: <7mA
- Frequency: adjustable
- PCB dimensions: 27 x 55mm

Electronic kits and modules > Intercoms

AA237 Fibre Optics Voice Transmission 9VDC Kit

The kit allows you to send sound through 1mm plastic fibre optic cable. On the transmitter circuit board there is a microphone and a circuit to modulate the light emitted from the LED.

Specifications:
- Supply voltage: 9Vdc for each PCB
- PCB size T: 25 x 45mm
- PCB size R: 43 x 43mm

PB049 Two Station Intercom 6-12V Kit

A very useful kit which can be used wherever a light, economical and portable intercom is required. Each unit contains its own microphone, speaker and audio power amplifier circuit using the LM386. The circuit may be modified to become a hard wired bug.

Specifications:
- Power supply: 6 - 12Vdc
- PCB dimensions: 55 x 30mm

AE951 Cannon 12VDC

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Anti-Flea-Generator

24 can be used together

15 Ultrasonic Wall

can generate

Ultrasonic Vermin

is a powerful

Marten-Repeller

38 24 White LED Flashlight

Ultrasonic Generator

40 Marten-Scarecrow

(Kit) It is well known that crawling and jumping parasites are banished through the ultrasonic sound and that is what this kit does. It produces ultrasonic sounds which are adjustable within the range of approximately 8 to 35kHz.

Specifications:
- Adjustable frequency: approx. 2 -3kHz
- Sound pressure : 100dB max.
- Range: >40m with free field of vision
- Dimensions: 72 x 50 x 33mm

Not included:
- Loudspeaker 8 ohm (not piezo)
- or a dynamic 8 ohm earpiece.

This ultrasonic loudspeaker module can be used together with any ultrasonic signal generator like (GB779) and (GB806). It contains a light emitting diode that only lights up when the loudspeaker is fed with ultrasonic sounds. It can be mounted outside provided that it is protected from direct rain. It has two mounting flanges for wall fastening. Dimensions: 72 x 50 x 28mm. Suitable for mounting outside but the loudspeaker should be protected from rain. The LED is loaded by the supplied ultrasonic wave frequency and doesn’t require any additional operating voltage.

GB779 Ultrasonic Generator

This module can generate ultrasonic sounds that scare away animals and insects. It can also be used as a dog whistle. It generates pulsating high pitched audio signals with adjustable frequency.

Specifications:
- Supply voltage: 9Vdc
- Adjustable frequency: approx. 2 -3kHz
- Sound pressure : 100dB max.
- Range: >40m with free field of vision
- Dimensions: 72 x 50 x 33mm

Features:
- Loudspeaker 8 ohm (not piezo)
- or a dynamic 8 ohm earpiece.

This module generates powerful ultrasonic sounds that scare away animals and insects; eg rats, wild rabbits, mosquitoes etc. It can also be used as a dog whistle. It generates powerful, pulsating, high pitched sound waves.

Specifications:
- Supply voltage: 12 - 14Vdc
- Supply current: 40mA
- Frequency: 12kHz - 38kHz
- Dimensions: 92 x 55 x 28mm

GB788 Marten-Repeller Module

This module generates ultrasonic sounds that scare away animals like rodents. It generates powerful ultrasonic sound waves with adjustable frequency. There are 4 piezo-loudspeakers supplied with the module. The device can be mounted in a car to scare the martens away from the engine compartment.

Specifications:
- Supply voltage: 12 - 24Vdc
- Supply current: 50mA at 12Vdc and 100mA at 24Vdc
- Frequency: 10kHz - 40kHz
- Volume: 120dB with speaker
- Dimensions piezo loudspeaker: approx. 30mm x 13mm
- Dimensions module: approx. 60 x 45 x 25mm
- Dimensions: 75 x 45 x 28mm

GB794 Decalifier Module

This module is used to prevent calcification and corrosion in water pipes like inside boilers and washing machines. It is not harmful to the environment. It does not use any chemicals and its operation is based on physical-induction of magnetic fields which charge the trace elements such as lime, metal oxides, etc. The coil on the water pipe must be wound in opposite directions.

Specifications:
- Supply voltage: 6 - 15Vdc
- Supply current: 130mA
- Oscillating frequency of magnetic field: 2kHz
- Capacity: approx. 5000 l/h
- Dimensions: 72 x 50 x 27mm

GB806 Ultrasonic Vermin Banisher Module

This is a flashlight keychain, with a white LED. It is ideal for use around the car during night. Use it as a car key-holder. Its built-in strobe effect can be used to attract attention for emergencies.

Features:
- White LED technology
- 2 High-power LEDs (4500mcd)
- Low power consumption
- Built-in strobo effect for emergencies

Specifications:
- Power supply: 12V battery (DB247)
- Dimensions: 60 x 40 x 14mm

GB611 White LED Flashlight

GB757 Marten-Scarecrow for Motor Vehicle Modul

This module is a powerful ultrasonic sound generator. Humans do not hear it, but rodents find it very irritating and try to avoid it. In order to scare rodents away from the motor vehicle, the module should be mounted inside its engine compartment.

Features:
- Powerful hemispherical dome speaker
- 2-fold effectiveness ultrasound + pulsating light

Specifications:
- Supply voltage: 12 - 24Vdc
- Supply current: 500mA max.
- Ultrasonic frequency: approx. 23kHz
- Angle of radiation: approx. 140°
- Acoustic pressure: 110dB max
- Temperature range: approx. -25 to +80°C
- Fuse: 500mA
- Dimensions: 72 x 50 x 28mm

Electronic kits and modules

> Car Accessories
EB355 Head Light Warning Alarm

The head light indicator may be set for one or two functions. To indicate that the head lights should be switched off after switching off the ignition contact or to indicate that the head lights should be on once ignition contact is switched on.

**Specifications:**
- Supply voltage: 12 Vdc
- Continuously repeat alarm tone for lights On
- Repeated alarm tone for for lights out
- Only 3 wires are required for hook up
- PCB dimensions: 48 x 57mm

GB490 Parking Radar Kit

If you have problems parking then this kit is for you. Using (ultrasonic) sound waves, whose frequency is beyond our range of hearing, we can measure a distance.

**Specifications:**
- Detection range: 5cm - 1.5m (adjustable)
- Supply voltage: 10 -15Vdc
- Supply current: 16mA

GB646 Electronic Transistor Ignition for Cars

Give your car a luxurious feeling with this kit. It gives your car a better starting and a smoother running, particularly at a very high and very low RPM. Lower fuel consumption, less pollution. Only for cars with negative ground.

**Specifications:**
- Supply voltage: 12Vdc (Also possible with 6V)
- Supply current: 4A max
- Connection speed: up to 500kHz
- Dimensions: 70 x 35mm

FB105 Digital Tachometer

For cars or motorcyce with a petrol engine. May be used as a general purpose revolution counter. It is easy to calibrate. See special instructions in the manual for use with electronic ignition.

**Specifications:**
- Supply voltage: 10 - 15Vdc
- Supply current: 200mA
- Display: 2-digits, 7 segments, LED display
- PCB Dimensions: 80 x 45 + 80 x 60mm

GC035 Multifunctional Car Courtesy Light

The kit is useful for finding the ignition switch or seat belt in the dark. It can be used to control the interior illumination of a car. It has a push button and battery protection.

**Specification:**
- Power supply: 12 - 15Vdc
- Supply current: 13mA/min
- Switch-off delay: Adjustable for 0-60 seconds
- PCB dimensions: 45 x 70mm

**Electronic kits and modules**

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This module can be used to record DC signals or slow-moving signals over very long periods. It is connected to the USB port. The measurements are automatically stored onto the hard drive for further processing. No power supply is required as it is powered by the USB connection. Signals are instantly displayed on the PC screen using an analogue or DVM display. PC-LAB2000 Software included.

**Specifications:**
- Number of inputs: 4 DC coupled input
- Input impedance: 1M ohm
- Max. sampling frequency: 100Hz
- Input ranges: 3V, 6V, 15V and 30V
- Input sensitivity: 10mV
- Max. Input voltage: 30Vdc
- Accuracy: +/- 3% of full scale
- Input resistance: 1M ohm

**Software:**
- Analogue trace or DVM readout
- 4 channels record simultaneously
- Storage and recall of screens or data
- Automatic recording option for long recording
- On screen markers for time and voltage
- DLL included for your own developments
This kit can be used to record DC signals or slow-moving signals over long periods. It is connected to the USB port. The measurements are automatically stored into the hard drive for further processing. No power supply is needed, the device is powered by the USB connection.

**Specifications:**
- Number of inputs: 4 DC coupled input
- Input impedance: 1M ohm
- Max. sampling frequency: 100Hz
- Input ranges: 3V, 6V, 15V and 30V
- Input sensitivity: 10mV
- Max. Input voltage: 30Vdc
- Accuracy: +/- 3% of full scale
- Input resistance: 1M ohm

**Software:**
- Analogue trace or DVM readout
- 4 channels record simultaneously
- Storage and recall of screens or data
- Automatic recording option for long recording
- On screen markers for time and voltage
- DLL included for your own developments

**Not included:**
Three additional temperature sensors (optional): (AC848)

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**VS422  Mini USB Interface Board**

**Module**
This is a very small, universal USB powered and controlled I/O board. It has 15 inputs/outputs, including analogue inputs/ digital inputs/outputs and PWM outputs. The number of inputs/ outputs can be further expanded by connecting two cards to the PC’s connectors.

**Specifications:**
- Power consumption through USB port: approx. 50mA
- PWM frequency selection: 2930Hz, 11.7kHz, 46.9kHz
- Output current, PWM: 10mA
- Digital outputs: 6mA
- 8 x digital 5V inputs/outputs with on-board LED indication: Input/ output mode selectable in groups of 4 terminals
- 1 x 32 bit pulse counter up to 1MHz input frequency
- 2 x 8 bit 5V PWM outputs: 0 to 100%
- Output current PWM: 10mA
- Digital outputs: 6mA
- Up to 2 cards can be connected to one PC
- Dimensions: 68 x 40mm

**Dimensions:**
- PCB dimensions: 38 x 38mm

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**FB644  8-Channel Relay Card Module**

**Module**
This card simply connects to your (wireless) router by means of a standard network cable. The user can operate the 8 relays or check the status of the input from anywhere in the world. It is web server based, so almost any internet browser can connect to the card, even mobile devices. It doesn't require additional software installation.

**Features:**
- IEEE 802.3 compatible Ethernet controller
- Static IP or DHCP
- Supports 10 Base-T port (10Mbps)
- Use SNTP time server as real time clock
- User definable names for all in and out outputs
- Sends email at power up and input events
- Web interface for configuration & operation
- LCD displays clock or network settings
- Multiple users (1 administrator & 3 additional users)

**Specifications:**
- Power supply: 12Vac/ 500mA
- 8 Relay contacts: 12A @ 30VDC or 16A @ 230Vac
- Input: dry contact or voltage input

**Dimensions:**
- PCB dimensions: 68 x 40mm

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**GB693  PC Interface Board**

**Kit**
The device is suitable for switching different appliances, lamps or motors by means of a computer program. Due to the enclosed software it is possible to switch on and off up to 8 different appliances at different times. It is also possible to program certain switching sequences or attractive effect lighting for stages and discotheques.

**Features:**
- Galvanically isolated from computer
- 9 analogue outputs, of which one is high precision & 4 analogue inputs
- A simple way of controlling using Turbo Pascal, Turbo C, Q basic, Visual basic
- Printer bypass connector on board
- Simple connection with printer port

**Specifications:**
- Digital outputs: optocoupler, open collector output: 50mA
- Digital inputs: 5V/ 5mA max 20V/40mA
- Analogue outputs:
  - 8 outputs DAC1 to DAC8 resolution: 64 steps
  - Minimum output voltage: 0.1V @ 2mA
  - Max output voltage: 11.5V adjustable @ 2mA
  - Resolution per step from 0.1 to 11.5V: 160mV +/- 90mV
  - 1 precision output DA1, resolution: 256 steps
  - Max output voltage: 4.5 adjustable @ 0.5mA
  - Resolution per step from 0 to 4.5: 17.5mV
  - Supply voltage: 230Vac

**Dimensions:**
- PCB dimensions: 38 x 38mm

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**AD543**

**Kit**
An interface board is useful if a computer is to be used in certain control applications. This kit is an interface card that excels in its simplicity of use an installation. This kit advances the computer’s ability to communicate with the outside world. All the necessary information and specifications are included in the information sheet.

**Features:**
- Galvanically isolated from computer
- 9 analogue outputs, of which one is high precision & 4 analogue inputs
- A simple way of controlling

**Specifications:**
- Power supply: 12Vac/ 500mA
- 8 Relay contacts: 12A @ 30VDC or 16A @ 230Vac
- Input: dry contact or voltage input

**Dimensions:**
- PCB dimensions: 68 x 40mm
Extended USB Interface Board

(Kit) This USB interface board has 8 digital inputs, 8 digital outputs and 1PWM output. There are also 8 analogue inputs and 8 analogue outputs. The connection to the computer is isolated in order to prevent electrical damage to the computer's USB port.

Specifications:
- Power consumption: through USB port: approx. 60mA
- Up to 8 cards can be connected to PC
- Power supply through adaptor: 12Vdc/300mA
- PWM Frequency: 15.6kHz
- Standard execution time: 48ms
- Enhanced execution time: 2ms
- PCB dimensions: 195 x 142 x 20mm

VP283 8-Channel USB Relay Card Kit

(Kit) With this eight relay channels connected to the USB port, you can easily connect to the outside world. A board space for extra noise suppressors is provided and on board push button can be used to test or operate all the relays.

Features:
- USB-controlled relay card
- Manual operation for toggle, momentary or timer operation
- Timer settings up to 18 hours
- Optional open collector connectivity
- DLL for own software development
- Event-driven and open protocol
- Two way PC communication
- LED indication for power and relay action

Specifications:
- Power supply for relays: 9-10Vac
- 8 high power relays: 16A each
- Dimensions: 160 x 107 x 30mm

VN413 Extended USB Interface Board Module

This computer interface board module has a total of 33 inputs/outputs, including analogue/digital and a PWM output. The connection to the computer via the USB port is galvanically-optically isolated, so that damage to the computer is impossible thus providing a high level of secure implementation.

Specifications:
- Power supply: 12VDC/300mA
- PWM frequency: 15.6 kHz
- Up to 8 cards can be connected to the PC
- Command execution time: between 21 & 48ms
- PCB dimensions: 195 x 142 x 20mm

This kit is an interface board that has 5 digital input channels and 8 digital output channels. There are also two analogue inputs and two analogue outputs with 8 bit resolution. The number of inputs/outputs can be further expanded by connecting more (up to a max of four) cards to the PC’s USB connectors. The specifications are well listed in the information sheet.

Specifications:
- 5 digital inputs
- 2 analogue inputs with attenuation & amplification option
- 8 digital open collector output switches
- Up to 4 cards can be connected to PC
- General conversation time: 2mS per command
- Power supply through USB: approx 70mA
- Dimensions: 145 x 89 x 20mm

AB313 USB Interface Card Module

This module is an interface board that has 5 digital input channels and 8 digital output channels. There are also two analogue inputs and two analogue outputs with 8 bit resolution. The number of inputs/outputs can be further expanded by connecting more.

Specifications:
- Power supply: USB connection
- Conversation time: 20ms/command
- Number of digital inputs: 5
- 2 analogue inputs with attenuation & amplification option
- PWM to 100% open collector outputs 100mA/40V
- General response time: 2ms per command
- Resolution: 8 bit
- Voltage range: 0 to 5V
- Dimensions: 110 x 80mm

GB767 4-Channel Computer Switch Module

This module enables one to switch up to 4 different electronic devices independently using a personal computer. It is connected to the computer's printer port and is controlled by the included software. The user
Serial Isolated I/O

This is a PC controlled PIC Programmer

This ICSP PIC programmer can be used to program

This is a wireless RF data kit

This is a FLASH PIC Programmer & 12 RF Data Link - Serial

Create your own RF Data Link - Serial PIC Programmer and

Electronic kits and modules

AE006 RF Data Link - Serial Output Receiv Kit

AE005 RF Data Link - Serial Input Transm Kit

(ZIF socket

Microcontroller selection using patch jumper

SUBD connector set included

Specifications:

Power supply: 15Vdc, 300mA min

Serial port connector: 9 pin SUBD

Dimensions: 132 x 65 x 20mm

(Kit) This is a wireless RF data link that recieves data from a computer’s RS232 seria port, buffers data and transmits it via radio waves. The features of the kit and specifications are provided in the information insert of the kit.

Not included: Null modem lead 9 pin socket at each end (AE069)

Electronic kits and modules

> Programmers > Microcontroller Programmers

AC480 USB PIC Programmer Kit

(KIT) This ICSP PIC programmer kit is connected to your PC using the USB port. It can also be used for ICSP programming via the supplied 5 wire cable. It makes use of the User interface software Micropro.exe that has to be downloaded from the internet. The internet site to download the interface software from is listed in the information leaflet.

Specifications:

Supply voltage: 9 - 12Vdc

Supply current: 500mA/min

Comes with a case and end panel pieces as shown in the photos

AE006 RF Data Link - Serial Output Receiv Kit

(Kit) This is a wireless RF data link that recieves data that it transmitted via radio waves and sends it to a computer's RS232 serial port. The features of the kit and specifications are provided in the information insert of the kit.

Not included: Serial lead 9 pin plug to socket (AB419)

AE005 RF Data Link - Serial Input Transm Kit

(VN736 Mini PIC-PLC Application Module

AD544 PIC Programmer Board with ZIF Socket

This kit can be used to program a wide range of PIC microcontrollers from Microchip. An on-board 40 pin universal ZIF socket is included. This socket holds one PIC at a time when programming. It can program certain PICs in circuit.

Features:

- On board configuration 40 pin own automation, controller, car application etc.

Features:

- 9 free programmable I/Os (4 inputs, 5 outputs)

- PIC16F630 microcontroller

- LED indication for power supply & relay output

- 1 free programmable LED indication

- On-board mini buzzer for audible signals

Specifications:

- Power supply: 12VDC (unregulated)/ 100mA

- Input signal voltage: 5 -24VDC

- 1 Relay output with NO/NC contact (2A)

- MCU speed: fixed 4MHz internal oscillator

Dimensions: 80 x 70 x 25mm

AB310 PIC Programmer & Experiment Board

(KIT) This is a FLASH PIC programmer kit. It is ideal for experimenting with flash PICs that can be reprogrammed up to 100 times. It has test push-buttons and LED indicators to carry out educational experiments.

Features:

- Test buttons & LED indicators to carry out educational experiments, such as the enclosed examples

- Easy connection to a PC through serial port

- Software to compile & program your source code is included

Specifications:

- Supply voltage: 15Vdc

- Supply current: 300mA

- Dimensions: 145 x 100mm

AB314 PIC Programmer and Experiment Board

This is a FLASH PIC programmer module. It is ideal for experimenting with flash PICs that can be reprogrammed up to 1000 times. It has test push-buttons and LED indicators to carry out educational experiments as described in the programming examples.

Features:

- Test buttons & LED indicators indicators to carry out educational experiments, such as the included programming examples

- Easy connection to PC through the serial port

- PIC16F627 flash microcontroller is enclosed (can be programmed up to 1000 times)

Dimensions: 73 x 56 x 29mm

Specifications:

- Operating voltage: 6 -24V/dc

- Loading capacity: 2A total current connected simultaneously

- Dimensions: 73 x 56 x 30mm

Manual is also included on the disc. Dimensions: 73 x 56 x 29mm

Specifications:

- Operating voltage: 6 -24V/dc

- Loading capacity: 2A total current connected simultaneously

- Dimensions: 73 x 56 x 30mm

Dimensions:

Supply current: 150mA

Supply voltage: 15Vdc

Dimensions: 80 x 70 x 25mm

Dimensions:

Supply current: 300mA

Supply voltage: 15Vdc

Dimensions: 145 x 100mm

Dimensions:

Supply current: 150mA

Supply voltage: 15Vdc

Dimensions: 80 x 70 x 25mm

Dimensions:

Supply current: 300mA

Supply voltage: 15Vdc

Dimensions: 145 x 100mm

Dimensions:

Supply current: 150mA

Supply voltage: 15Vdc

Dimensions: 80 x 70 x 25mm

Dimensions:

Supply current: 300mA

Supply voltage: 15Vdc

Dimensions: 145 x 100mm
This kit is a powerful programmer for the Atmel 89S51 family of microcontrollers. It supports a number of devices which are listed in the kit's information leaflet.

**Specifications:**
- Supply voltage: 16Vdc
- PCB dimensions: 118 x 70mm
- Not included:
  - Serial lead 9 pin plug to socket (AB419)

**AD896 PIC Programmer Board Module**

This module can be used to program a wide range of PIC microcontrollers from microchip. An on-board 40 pin universal ZIF socket is included. This socket holds one PIC at a time when programming.

**Features:**
- On board configurable 40 pin ZIF socket
- Easy to use programming (software included)
- On board \( 'in\) circuit serial programming connector
  
  **Specifications:**
  - Supply voltage: 15Vdc
  - Supply current: 300mA
  - Serial port connector: 9 pin SUBD
  - Dimensions: 132 x 65 x 20mm

**Electronic kits and modules > Remote Controllers > IR Communication**

**AB305 15-Channel IR Transmitter**

This is a 15-channel IR transmitter kit. It has 10 rubber keypad push button switches. 4 Addresses allow the use of up to 4 receivers in 1 room. For example 3 transmitters can access 45 channels in 1 room.

**Specifications:**
- Power supply: 3x 1.5V AAA cells (not incl)
- Range: 20m max
- Rubber keypad
- LED indication
- Dimensions: 150 x 58 x 20mm

**AB299 2-Channel IR Remote Transmitter**

This 2 channel IR transmitter kit is used to control the 2-channel IR remote receiver (AB298). Easy channel configuration using the 2 push-button switches, there are no jumpers required.

**Features:**
- Compact 2 button IR keychain remote
- 2 powerful IR LEDs for a range of up to 15m (indoors)
- 16 channels (allow the use of multiple transmitters in one room)
- Easy channel configuration, no jumpers required
- 'Transmit' LED

**Specifications:**
- Power supply: 12V
- Transmitter range: 15m max
- Coding: 16 possible channels
- Dimensions: 60 x 40 x 14mm

**GC057 10-Channel 2-Wire Remote Control**

This kit allows you to control up to 10 devices using only 2 wires, over a long distance, between the sender and the receiver. Microprocessor controlled. Inputs can be push-buttons, switches or open collectors from another device. The receiver section provides 10 open collector outputs that allow you to control relays directly. Terminal block connectors for all input and output connections are included. All outputs are provided with LED indication.

**Specifications:**
- Operating voltage: 12- 15V AC or DC, 300mA (single)
- 10 open collector outputs: 50V/ 100mA
- Number of channels: 10
- Input impedance: 10k ohm

**AB111 IR Remote Control and Decoder IC Kit**

This kit makes it easy to build your own IR remote operated system. It is ideal for practical classes.

**Specifications:**
- Power supply: 2x 1.5V AAA cells (not incl)
- Remote IR module and decoder IC: 5Vdc

**AB127 12 Relay IR Board and Remote Control Kit**

This kit consists of a commercial 14-button infra-red remote control unit and a 12 relay IR receiver board. This kit makes it very easy to add an IR remote control system to any project or existing equipment.

**Specifications:**
- Power for IR remote: 2 x 1.5V AAA cells
- Supply voltage: 12Vdc/ 500mA adapter
- Supply current: 400mA max
- Dimensions: 122 x 113 x 20mm

**PB304 IR Toggle Flip-Flop Switch 8-15VDC Kit**

(Kit) This is an IR toggle switch that will work with any button on any modern IR remote control such as a TV IR remote control unit.

**Specifications:**
- Power supply: 12V
- Transmitter range: 15m max
- Coding: 16 possible channels
- Dimensions: 60 x 40 x 14mm
This unit will turn your USB to RF remote control system into a powerful remote control, simply connect to the USB port, install the driver and you are set. The set includes an enclosure.

**Specifications:**
- Power supply: USB port
- 255 selectable addresses
- Transmit-test button
- 433MHz transmitter
- Dimensions: 80 x 55 x 35mm

(Kit) This unit will turn your computer into a powerful remote control, simply connect to the USB port, install the driver and you are set. The set includes an enclosure.

**Specifications:**
- Power supply: USB port
- 255 selectable addresses
- Transmit-test button
- 433MHz transmitter
- Dimensions: 80 x 55 x 35mm

This is a 2-channel RF code lock receiver forms the ideal remote control of all kinds of applications, where 2 different devices can be controlled over a distance. A choice can be made from over 8000 codes. It is also possible to use several receivers with one transmitter.

**Specifications:**
- Power supply: 2x 9Vac
- Two relay outputs: 10A toggle or momentary contact
- Two channels
- Easy to assemble
- LED On/Off and receiver indication for each channel

This is a keychain-style RF transmitter kit with 2 push-button switches. It can be used to control the 2 channel RF code lock remote receiver module (AB319).

**Features:**
- Generates unique 32-bit code
- Code can easily be changed for safety purposes
- Choose continuous or 'burst' transmission
- LED indicator

**Specifications:**
- Power supply: 12V (DB247)
- Operating frequency: 433MHz
- Open field of up to 30m possible
- Dimensions: 63 x 40 x 16mm

(Kit) This two channel RF code lock receiver forms the ideal remote control of all kinds of applications, where 2 different devices can be controlled over a distance. A choice can be made from over 8000 codes. It is also possible to use several receivers with one transmitter.

**Specifications:**
- Power supply: 2x 9Vac
- Two relay outputs: 10A toggle or momentary contact
- Two channels
- Easy to assemble
- LED On/Off and receiver indication for each channel

This is a 2-channel IR remote receiver kit with a program push-button switch.

**Features:**
- Two channels with relay output (24 VAC/DC 1A max)
- Ultra compact
- Channel reception indication through LEDs
- Toggle/pulse selection for each channel
- Learn mode for channel ID
- All settings are stored in EEPROM

**Specifications:**
- Power supply: 12Vdc
- Supply current: 75mA max
- Range: 15m max when used indoors
- Dimensions: 45 x 50 x 15mm

(Kit) This is a 15-channel IR remote control kit. Its enclosure has a sleek design. It has two push-button switches. It can be set to 1 of 3 addresses, allowing the use of up to 3 receivers in 1 room.

**Specifications:**
- Power supply: 2x 1.5V AAA cells
- Range: 20m max
- LED function indication
- Dimensions: 160 x 27 x 24mm

**Electronic kits and modules**

- Remote Controllers > RF Communication
**4But Transmitter for AC Power Voltage Temperature Switch Frost Indicator**
This is a preassembled keychain-style RF transmitter with 4 push-button switches. It can be used to control the RF 4-channel relay switch or the rolling code 10 channel radio control kit.

**Specifications:**
- Power supply: 12V (DB247)
- Range: 100m max
- Operating frequency: UHF 434MHz
- Dimensions: 38 x 50 x 16mm

**GB819 Remote Control Using Any Mobile Phone (Kit)**
(Kit) Turn equipment ON and OFF from any random place via a cellular phone that you specially reserved to use with this kit. You can use it to open your gate, turn on the lights etc.

**Features:**
- Applications: turn on the lights or the heating, open your gate, control animal feeders, activate a car alarm etc.
- Ring detection circuit avoids phone charges
- No need to open or modify your cellular or connect it with other device
- Compatible with most cellular phones

**Specifications:**
- Dual operation mode: ON/OFF or ON with auto turn off timer
- Power supply: 12Vdc/100mA
- Timer settings: 0.5s, 2s, 30s, 1 min, 5 mins, 30 mins & 1 hour
- Dimensions: 101 x 42 x 23mm

**AC908 2-Channel RF Code Lock Remote Receiver**
This is a two channel RF code lock receiver kit that works with random code. It can be controlled by the 2 channel RF code lock remote transmitter kit (AC916) or the assembled 2 channel transmitter module (AB318). Specifications are listed in the kit’s information leaflet.

**Specifications:**
- Power supply: 9 to 12V AC/DC (100mA)
- Relay contacts NO/NC: 3A each
- 433MHz operation
- Open field range of up to 30m at room temperature (range can decrease in colder ambient conditions)
- On-board antenna or external antenna
- Dimensions: 100 x 82mm

**GB777 Master-Slave 230V Module**
This module is useful for switching on or off a secondary device after the primary 230Vac device (master) has been powered. The module has to be connected in a power cable of the 230Vac device. It senses the electric current conducting through the connected 230Vac primary load and then switches the built in, potential-free,SPDT relay switch.

**Specifications:**
- Operating voltage: 230Vac/410Vac
- Switching capacity: 6A max/230Vac and 10A max/24Vac
- Max current: 15A for the master, 15A for the slave. Total current must not exceed 16A.
- Tripping power: approx. <10-3540 (for the master to turn on the sleeve)
- Own power module: <0.5W
- Dimensions: 65 x 67 x 37mm

**AF073 Temperature Switch Thermostat 12VDC (Module)**
Adjustable electronic temperature switch. The sensor (Ø 5 mm) may be connected with the control electronics via a cable with a length of up to 1 m.

**Specifications:**
- Operating voltage: 12 -15VDC
- Temperature: 0 - 100°C
- Switch output: relay contact 1 x switch-over, max 5A, 25A
- Dimensions: 60 x 45 x 25mm

**GB819 Remote Control Using Any Mobile Phone (Kit)**
(Kit) Turn equipment ON and OFF from any random place via a cellular phone that you specially reserved to use with this kit. You can use it to open your gate, turn on the lights etc.

**Features:**
- Applications: turn on the lights or the heating, open your gate, control animal feeders, activate a car alarm etc.
- Ring detection circuit avoids phone charges
- No need to open or modify your cellular or connect it with other device
- Compatible with most cellular phones

**Specifications:**
- Dual operation mode: ON/OFF or ON with auto turn off timer
- Power supply: 12Vdc/100mA
- Timer settings: 0.5s, 2s, 30s, 1 min, 5 mins, 30 mins & 1 hour
- Dimensions: 101 x 42 x 23mm

**Electronic kits and modules > Sensing Devices > Power Sensitive**

**AE963 AC Power Voltage LED indicator100-240Vac**
This kit is small in size but big in usage. It can be used for safety guidance, stairs, corridors etc. Its blue LED is operated on mains voltage. Also suited for mains indicator or other pilot lamps.

**Features:**
- Blue LED operated on mains voltage
- Suited for mains indicator or other pilot lamps
- For safety guidance, stairs, corridors etc.
- Special X2 safety capacitor

**Specifications:**
- Power supply: 100Vac to 240Vac
- Dimensions: 28 x 18mm

**AF073 Temperature Switch Thermostat 12VDC (Module)**
Adjustable electronic temperature switch. The sensor (Ø 5 mm) may be connected with the control electronics via a cable with a length of up to 1 m.

**Specifications:**
- Operating voltage: 12 -15VDC
- Temperature: 0 - 100°C
- Switch output: relay contact 1 x switch-over, max 5A, 25A
- Dimensions: 60 x 45 x 25mm

**GB777 Master-Slave 230V Module**
This module is useful for switching on or off a secondary device after the primary 230Vac device (master) has been powered. The module has to be connected in a power cable of the 230Vac device. It senses the electric current conducting through the connected 230Vac primary load and then switches the built in, potential-free,SPDT relay switch.

**Specifications:**
- Operating voltage: 230Vac/410Vac
- Switching capacity: 6A max/230Vac and 10A max/24Vac
- Max current: 15A for the master, 15A for the slave. Total current must not exceed 16A.
- Tripping power: approx. <10-3540 (for the master to turn on the sleeve)
- Own power module: <0.5W
- Dimensions: 65 x 67 x 37mm

**Electronic kits and modules > Sensing Devices > Power Sensitive**

**JH087 Temperature Controller**
This temperature control module can be configured for cooling or heating control of 220V AC or 12V DC equipment.
It can be used for applications such as industrial temperature and humidity control or even vehicle temperature control.

**Electronic module power**
- Voltage: 12 - 25VAC or DC
- Current: 100mA

**Control power (maximum ratings)**
- Output: Electromechanical relay
- Number of outputs: 1
- Relay contacts: 16A (2 x 8A)
- Fuse: 5A
- Contact rating: 10A

**AD608 Thermostat Module 5-30 Degrees Celsius**
This module is a general purpose, low cost thermostat using a NTC temperature sensor. It has a relay output switch and LED indicator.

**Features:**
- Use for frost protection
- Heating controller
- Automotive applications
- Temperature regulated fan control
- Air conditioning controller
- Preset temperature alarm

**Specifications:**
- Supply voltage: 12Vdc
- Supply current: 100mA
- Temperature range: 5°C to 30°C
- Dimensions: 54 x 62 x 28mm

**AE506 Universal Temperature Sensor**

**(Kit) This temperature sensor can measure indoor and outdoor temperatures, control heating and cooling of rooms, equipment, monitor temperatures in processes, check the swimming pool’s temperature etc.**

**Specifications:**
- Output voltage: 10V
- Output current: 0-20mA
- Power supply: 12Vdc
- Current consumption: 30mA max
- Dimensions: 55 x 35 x 15mm

**GB775 Twilight Switch 12VDC Module**
This module can be used to switch on security lights during night time. It is a light sensitive switching device. Its output relay switch is switched on when the light shining onto its sensor is brighter than the preset value. Only for indoor use.

**Specifications:**
- Supply voltage: 12Vdc
- Output relay: 1pole 2 way
- Switching capacity: 3A/40V

**FB587 Light Barrier / Heat Switch 12V**
(Kit) With this combination construction set you may optionally construct a light barrier, a heat switch, ice alarm or a twilight switch.

**Specifications:**
- Operating voltage: 12V
- No response from suppliers
- The relay has a max. Load of 6A

**GB609 Thermostat Kit 5 to 30 Degrees Celsius**
This kit is a general purpose low cost thermostat using a NTC temperature sensor. It has a relay output switch and a LED indicator.

**Specifications:**
- Supply voltage: 12Vdc
- Supply current: 100mA
- Temperature range: +5°C to +30°C
- Dimensions: 54 x 62 x 28mm

**GB676 Light Sensitive Switch**

**This kit automatically switches on at dusk and turns off at dawn.**

**Features:**
- Adjustable sensitivity with wide range
- Delay circuit avoids cycling

**Specifications:**
- Power supply: 12Vdc
- Output relay contacts: 5A/24Vdc
- Dimensions: 65 x 50mm

**FB534 Light Barrier 12VDC**
(Kit) This device has a sensor that is sensitive to ordinary light

**GB610 IR Remote Checker**

**This kit makes it easy to check that an IR remote control unit operates properly. Point the remote at this IR sensor and push any button. Four on board LEDs will flash while detecting IR transmission from the IR remote control.**

**Specifications:**
- Power supply: 9V battery
- Low power consumption
- Dimensions: 55 x 30 x 33mm
and controls a relay. It can be used in alarm systems and for twilight switches. The relay can be set to switch on when the light intensity is above or below a specific level. When the light beam of a lamp on doors, windows etc is interrupted by a person, the relay connects. Also suitable as twilight switch.

**Specifications:**
- Operating voltage: 12Vdc
- Current consumption: <100mA
- Relay contact: 1 x ON max 3A
- Adjustable sensitivity
- Designed for visible light
- Dimensions: approx. 56 x 27mm

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**PB050 Light/Dark Activated Relay Switch Kit**

(Kit) A simple and inexpensive circuit, suitable for many applications like the automatic switching of lights in a shop window or a room according to the ambient light level. A light/dark option has been incorporated. The circuit uses a light dependent resistor.

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**GB749 Twilight Switch 220-240V Module**

This electronic twilight switch connects a 230Vac lamp automatically by means of a built in relay at nightfall and off again at daybreak. It can also work the other way round, on at daybreak and off at nightfall. Floating loads up to 3A may be switched. The module has a switching delay to prevent immediate reaction to short lightning like headlights of a passing car.

**Specifications:**
- Supply voltage: 230Vac
- Supply current: 40mA max
- Output relay: 3A/230Vac
- Delay in reaction: approx. 30 sec ± 50%
- Temperature range: approx -15° to +40°C
- Switching delay: 15 -45 sec
- Dimensions: 70 x 60 x 22mm

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**AB106 Three Light Dependent Resistor Kit**

Three different light sensitive kits, each with a Light Dependent Resistor and output relay switch.

**Specifications:**
- Supply voltage: 12Vdc
- Output relay contacts: 10A/230V
- PCB dimensions: 37 x 60mm

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**AF099 Optical Proximity Switch**

(Kit) This optical proximity switch requires no touching. It can be operated by just waving a hand or object infront of the unit. It has adjustable sensitivity and status LED indication. The kit includes a snap-in enclosure.

**Specifications:**
- Power supply: 12Vdc/100mA
- Output relay rating: 3A/24Vdc
- LED indication
- Dimensions: 21 x 47 x 41mm

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**PB302 Light Alarm 9VDC Kit**

(Kit) This detects the slightest light. Ideal for protecting things like medicine cabinet, cookie jar etc. The kit uses the MAL12 darlington phototransistors and a 4011 CMOS IC containing 4 logic NAND gates.

**Specifications:**
- Power supply: 9V battery
- PCB dimensions: 23 x 50mm

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**FB628 Light Barrier**

(Kit) Whenever there is an incidence of light onto the phototransistor, the light barrier will switch on the on-board LED. As soon as the light beam is interrupted, the LED will switch off. Operating voltage: 6 -12Vdc.

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**FB627 Sensor Switch 9V**

(Kit) Whenever the two screw heads are touched with the fingers, a light emitting diode will light up. If a relay card, kit FB631, is connected with the sensor switch, it is feasible to switch through the relay.

**Specifications:**
- Contact loads up to 3A
- Operating voltage: 9Vdc

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**PB030**

**FB629 Infra-Red Detector**

With the aid of this kit it is possible to carry out functional tests on IR remote controls used in TV sets and video devices. Whenever there is radiation of infrared beams on the special IR sensor, the LED will light up and indicate that the remote control is operated. Operating voltage: 9Vdc

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**AA235 Touch Switch with Touch Plate 12VDC Kit**

This touch switch kit is activated by just touching a wire or touch plate. The device switches on a relay once activated that stays on for 1 to 5 seconds.

**Specifications:**
- Operating voltage: 12Vdc
- Relay contacts: 10A

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GB086 Sensor Touch Switch

(Kit) By soft touching of the sensors (e.g. with fingers) it is possible to connect and switch off devices (by relay). Ideal as secret switch, as original bell or use in hidden switches.

Specifications:
- Operating voltage: 12Vdc
- Relay contacts: 1 x change over, 3A max capacity
- Dimensions: 45 x 55 x 30mm

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FB626 Water Level Sensor 9V

(Kit) Whenever two bare wires make contact with water, the light emitting diode will light up. The device is suitable to set an alarm in case of overflowing rain barrels and gutters.

Specifications:
- Supply voltage: 9Vdc
- Current consumption: 3A
- Indication of water: LED
- Size of board: approx. 45 x 16mm

EB637 Mini-Vox and Relay Kit

The idea behind a VOX kit is that instead of the user pressing a pushbutton switch, the sound of the user's voice activates a relay switch. This kit enables hands-free control over devices like a tape recorder. Power supply: 12Vdc.

Specifications:
- Supply voltage: 9V battery
- LED indication
- 12VDC buzzer connection (buzzer not incl.)
- Dimensions: 56 x 64mm

GB606 Clap On/Off Switch

(Kit) You can operate your lighting with just a simple handclap. It is ideal for disabled or elderly people. It has good immunity against surrounding noises.

Features:
- Operate your lighting supply by clapping your hands
- Ideal for disabled or elderly people
- Good immunity against surrounding noises
- '1 clap' or '2 clap' mode selection
- Microprocessor controlled
- Output relay with LED indicator

Specifications:
- Supply voltage: 12Vdc
- Supply current: 150mA
- Output relay contact rating: 3A/24V
- Dimensions: 79 x 73 x 22mm

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FB651 Smoke Alarm 12V

(Kit) This visual smoke alarm switches a relay if thick smoke gets between the installed infrared light barrier. Sirens, alarm lamps etc may then be switched by means of the relay. It can be used as a circuit for instruction and amateur purposes.

Specifications:
- Supply voltage: 12Vdc
- Supply current: 150mA
- Operating system: optical smoke recognition
- Indication: LED
- Relay contact: 12V, 1 x ON
Infra-Red Light Barrier 1 - 4m

(Kit) This light barrier can be used to announce visitors, warn against burglars, set boundaries or even for science projects. **Specifications:**
- Power supply: 9Vdc/50mA (Transmitter) 9Vdc/20mA (Receiver)
- Range: 1 - 4m
- Audible 85dB and visual LED indicator alert
- On/Off switch provided
- Dimensions transmitter: 55 x 40mm
- Dimensions receiver: 100 x 50mm
- 9V battery holder & adapter jack incl.
- Not recommended for outdoor use

Infra-Red Light Barrier max. 50m

**Specifications:**
- Power supply: 9 - 12Vdc (transmitter) 12Vdc (receiver)
- Current consumption transmitter: approx. 100mA
- Current consumption: 50mA max
- Relay contact receiver: 1 x switch-over, max 25V, 3A
- Size of board, transmitter: approx. 58 x 23mm
- Size of board, receiver: approx. 57 x 45mm
- Range: 50m
- Relay contact rating: 3A max

Infra-Red Light Barrier Range 18m

**Specifications:**
- Power supply: 9Vdc (Transmitter) 12Vdc (Receiver)
- Operating voltage: 18m
- Transmitting power: adjustable
- Relay contact rating: (SPST) 3A max

GB797 Light Barrier 4m Module

IR (infra-red) light barrier system consisting of separate IR transmitter and receiver units. When a single IR beam, between the two units, is interrupted, like when a person walks past it, the relay switches. The relay output is in the IR receiver unit and its on-time is adjustable. **Specifications:**
- Supply voltage: 12Vdc
- Supply current/unit: 100mA max
- IR beam range: 4m
- Output relay: 3A/25V

GB792 Infra-Red Detector 9V Module

This IR detector module contains a sensor to detect IR radiation. It may be used to determine if an IR remote control unit is functional by testing for its IR radiation. Direct the IR LED of the remote control towards the IR sensor of the module. Press any button on the IR remote control and see if the detector module lights up a LED while detecting radiation. **Specifications:**
- Supply voltage: 9Vdc
- Current consumption: 8mA
- Sensitivity: the whole light spectrum from visible light to infrared
- Display: Indication with built in LED

**Dimensions:**
- 30 x 40 x 17mm

Electronic kits and modules

> Relay Boards

EB605  Relay Board Dual Hi/Lo

The kit has two identical single pole double throw (SPDT) relays. Each relay has two low current, TTL logic level input buffers. **Specifications:**
- Supply voltage: 12Vdc
- Supply current: 110mA
- Input impedance: 10k ohm
- Output contact rating: 5A/230Vac
- Dimensions: 42 x 71 x 25mm

AB308  8-Channel Relay Card

The 8-channel relay card kit may be used in several ways: stand alone card, addressed by switches or open collector outputs or remote controlled through RS232. **Specifications:**
- Power supply: 12Vdc/ 500mA (including 12V output)
- Supply current: 500mA
- 8 high quality relay contacts: 5a/ 230VAC MAX
- Relay outputs are transient suppressed using VDRs
- LED confirmation on each relay contact
- 3 drive inputs to use with open collector or regular switches
- Power output: unregulated 12Vdc/200mA
- Dimensions: 160 x 107 x 30mm

EB845  Infra-Red Light Barrier 20m Kit

This kit uses IR light beam to monitor door and passage ways for security. It is suitable for detecting customers entering a shop, cars coming up a driveway, etc. **Specifications:**
- Supply voltage: 9 - 12Vdc
- Supply current: 40mA (Transmitter) 50mA (Receiver)
- Range: 20m

EB640  Infra-Red Light Barrier 4m

**Specifications:**
- Power supply: 9V Module (including 9V battery holder & adapter)
- Operating voltage: 9V
- Sensitivity: the whole light spectrum from visible light to infrared
- Display: Indication with built in LED

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This relay module consists of a 12V PCB mounted relay with back-EMF diode protection and five PCB mounted screw terminals.

**Specifications:**
- Relay coil input voltage: 12Vac/Vdc
- Relay coil input current: 45mA at 12Vac
- Relay contact current rating: 10A
- Relay contact voltage rating: 220V
- Dimensions: 30 x 60 x 20mm

This relay kit fills the need of a compact, low power, dual relay unit.

**Specifications:**
- Relay coil input voltage: 12Vdc
- Input impedance: 700 ohm
- Current consumption/ relay: 18mA
- Output relay contact rating: 1A/30V
- Dimensions: 30 x 53 x 15mm

This transistor switched relay card kit. The single post single throw (SPST) relay is switched on by any small, positive going, input DC signal of approximately 5mA or more. It could be released with weak signals from approximately 5mA upwards and will then switch a relay with heavy current contact of 3A. Ideal as switching amplifier for other kits, which have solely a light emitting diode as output and should switch other devices and machines through the day.

**Specifications:**
- Supply voltage: 12Vdc
- Supply current: 80mA
- Contact capacity: 3A/ 30V
- Contact: 1 x ON
- Sensitivity: ≤5mA
- Board dimensions: approx. 44 x 18mm

This 8-channel relay card kit is a down graded version of the universal relay card with 16 relays (GC055).

**Specifications:**
- Power supply: 230Vac/12W
- Output voltage: 12Vdc/ 250mA max
- No. of relays: 8
- The relays can be piloted directly of through open-collector outputs
- Contact: 1 x inverter: 10A/ 28Vdc or 125Vac, max 5A at 230Vac
- Fuse protection: 20 x 5mm, 250mA
- Dimensions: 150 x 212 x 55mm

**Kit** This 16-relay card kit has screw terminal for all connections and PCB mount power supply transformer is also supplied. Every relay output can be equipped with a noise suppressor network. The

**Specifications:**
- Power supply: 220 - 240Vac
- Lamp power rating: 40 - 200W
- Dimming ramp time: 5 sec.
- Load: 40 to 200W max.
- Max. Ambient temperature: 40°C
- Dimensions: 39 x 39 x 27mm
This kit is a multifunctional dimmer kit that controls 230Vac lighting and has advanced protection system with LED fault indication. This protection system automatically switches off the dimmer when the load is too inductive or the load is not detected.

**Features:**
- Microcontroller technology
- Variety of applications: impulse, staircase light control, slow ON/OFF dimmer, interval timer etc.
- ‘Soft start’ prolongs the life of bulbs
- Can be operated from several locations, simply by the parallel connection of push buttons
- Protected memory
- Equipped with fuse and key for function selection
- Equipped with a mains suppressor

**Specifications:**
- Power supply: 110 to 240Vac
- Current: 2.5A max
- Power output: 600W/300VA
- Dimensions: 100 x 82 x 36mm

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**GC071 Suppressed 3.5A Dimmer**

This is a compact dimmer kit that will easily replace an existing on/off light switch. This kit enables one to vary the brightness of a single light or a group of lights that are connected in parallel.

**Specifications:**
- Supply voltage: 230Vac
- Output current: 3.5A max
- Output power: 750W
- Fuse protection: 20 x 5mm, 4A
- Dimensions: 60 x 60 x40mm

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**GB770 Transformer Control 230V Module**

(Module) This device may be used to control the input power to a transformer. It is connected at the 230Vac primary side of a wire wound transformer. The brightness of a low-voltage halogen lamp can be controlled indirectly by controlling the input power to the step down transformer that powers the lamp. Applications: construction

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**AD702 Power Dimmer Push Button Controlled 1kW**

(Kit) This high power dimmer kit is designed for controlling 230Vac lighting. It makes use of microprocessor technology. It can be controlled from various remote places by using one or more mains rated push-button switches which are connected in parallel. The specifications are clearly listed in the information insert of the kit.

**Features:**
- Easy push-button operation for dimming of light sources
- Phase control can be disabled
- Non-volatile memory for last set light intensity
- Transformer protection in case of defective light sources
- LED status indication

**Specifications:**
- Operating voltages: 110 - 125V or 220 - 240V AC (50/60Hz)
- Max load: 1000W/ 230V or 500W/ 115V (5A)
Motor Speed Controllers

**Specifications:**
- **Supply voltage:** 8 - 35Vdc
- **Max output current:** 6.5A
- **Input voltage range:** 2.5 - 35Vdc
- **Dimensions:** 85 x 48 x 45mm

**This kit** enables one to control the rotation speed and direction of a DC motor with a single potentiometer. The motor is off in the centre position of the potentiometer.

**Specifications:**
- **Supply voltage:** 6 - 32Vdc
- **Max DC motor current:** 5A
- **Dimensions:** 42 x 93 x 30mm

**GB750 Motor and Lamp Controller**

**Specifications:**
- **Supply voltage:** 5 - 15Vdc
- **Dimensions:** 55 x 96 x 30mm
- **Enclosure dimensions:** 60 x 100 x 30mm

**This module** may be used to adjust and regulate the power used by incandescent lamps, heaters, hand drills, etc. A potentiometer is used to control the power consumption of loads that operate from mains voltages: 110-230Vac. It can power ohmic and inductive loads.

**Specifications:**
- **Supply voltage:** 110-230Vac/50-60Hz
- **Operating temperature:** approx. -30°C to 60°C
- **Duty cycle:** 100% at 3A or 20% at 6A respectively
- **Loads:** for ohmic or inductive loads
- **Output current rating:** 3A max (continuous use) 6A max (surge current)
- **Dimensions:** approx. 70 x 36 x 23mm

**FB615 Speed Control for Mini-Drilling Machines**

(Kit) This device is suitable for operation of miniature drilling machines with DC motors at a transformer. The rectifier is already fitted, the user only needs a transformer with AC voltage, according to the drilling machine.

**Specifications:**
- **Operating voltage:** 12 - 24V
- **Max output current:** 3A

**JH043 4-Channel USB Bipolar Stepper Motor Card**

(Kit) This USB stepper motor card can be used to drive four stepper motors. It is suited for bipolar motors and its current can be adjusted for each motor.

**AA244 DC Motor Speed Controller 5-15VDC Kit**

**Specifications:**
- **Input voltage range:** 5V to 15Vdc
- **Max output current:** 6.5A
- **Dimensions:** 55 x 96 x 30mm
- **Enclosure dimensions:** 60 x 100 x 30mm

**This kit** will control the speed of any common DC motor rated up to 100V (5A). The circuit operates on 5V to 15Vdc.

**Specifications:**
- **Supply voltage:** 5 - 15Vdc
- **Dimensions:** 55 x 96 x 30mm
- **Enclosure dimensions:** 60 x 100 x 30mm

**GB796 Power Control 230V - 2600VA Module**

This mains voltage power controller is ideal for driving ohmic and inductive loads like motors, heating sets, glow lamps etc. This device is not suitable for driving motors that require a starting capacitor or fluorescent lamps.

**Specifications:**
- **Operating voltage:** 230Vac
- **Output power rating:** 2600VA max
- **Operating voltage:** 110 - 240Vac
- **Current:** max 12A at 110V/AC this corresponds to max. 1320VA and max 2880VA at 240Vac
- **Load:** max. 2600VA
- **Required potentiometer:** 470 k linear
- **Required potentiometer:** 500k ohm linear
- **Dimensions:** 60 x 56 x 20mm

**EB359 DC to Pulse Width Modulator**

(Kit) This control circuit is ideal for the accurate control of DC motors, lighting levels, small heaters as well as other applications. The circuit converts a DC voltage into a series of pulses, such that the pulse duration is directly proportional to the value of the DC voltage. Its great advantage is that almost no power is lost in the control circuit. Protected against overload & short circuit.

**Specifications:**
- **Supply voltage:** 8 - 35Vdc
- **Max output current:** 6.5A
- **Input voltage range:** 2.5 - 35Vdc
- **Dimensions:** 85 x 48 x 45mm

**AB339 Bidirection DC Motor Speed Control**

K166V2

This **kit** enables one to control the rotation speed and direction of a DC motor with a single potentiometer. The motor is off in the centre position of the potentiometer.

**Specifications:**
- **Supply voltage:** 6 - 32Vdc
- **Max DC motor current:** 5A
- **Dimensions:** 42 x 93 x 30mm

**GB801 DC and Pulse Converter Module**

This module is specifically made to interface with power controller modules (GB750) and (GB796). This device enables one to adjust the above mentioned modules without using potentiometers, but directly replacing them. The module can receive either a DC voltage or TTL periodic pulse train input signal from a microcontroller or computer.

**Specifications:**
- **Operating voltage:** 110 or 230Vac
- **Duty cycle range:** 10% - 90%
- **Frequency:** 1 - 10kHz
- **Impulse voltage:** approx. 5V/DC pulse width 10 - 90% PWM
- **Input resistance:** control input 1 - 5V/DC > 1.4k control input 3 - 12Vdc 4.1k, control input 6 - 24Vdc >9.1k
- **Dimensions:** 70 x 60 x 23mm (without fastening straps)
The kit works without a computer. The direction and speed of rotation of the stepper motor's axis can be controlled. A double pole switch is required for changing the direction of rotation. The number of revolutions of the motor can be adjusted from 2 to 1000Hz. For motors from 5 - 12V, max 2A. The operating voltage of the module depends on the operating voltage of the motor (5-12V). A potentiometer 1M linear and a switch 2x change over are necessary for operation. The module works without a computer and can only control the direction of rotation and the number of revolutions of the motor. A controlled program flow is not possible.

This module can drive a 6-wire, unipolar stepper motor, like (AD980), without using a personal computer. The direction and speed of rotation of the stepper motor's axis can be controlled. A double pole switch is required for changing the direction of rotation. The number of revolutions of the motor can be adjusted from 2 to 1000Hz. For motors from 5 - 12V, max 2A. The operating voltage of the module depends on the operating voltage of the motor (5-12V). A potentiometer 1M linear and a switch 2x change over are necessary for operation. The module works without a computer and can only control the direction of rotation and the number of revolutions of the motor. A controlled program flow is not possible.

This module drives 4 wire, bipolar stepper motors by using a personal computer. The motor may either be controlled by hand, using computer keyboard, or by automatic program flow, written by the user. It is connected to the printer port. A double power pack (split power supply) is required for the current supply.

This kit is a very useful circuit for driving 5, 6 or 8-wire unipolar stepper motors. It can operate either freestanding or PC-controlled.

This kit enables the user to control two unipolar stepper motors via a printer port of a PC. It does not require any powering as it is powered by the port. A DOS based program written specifically to drive the stepper motors should be downloaded from the internet site provided in the information insert of the kit.

This 4-way interface splitter module is meant to be used with the 4 wire stepper motor driver (GB785) or 6-wire stepper motor driver (GB754). It is connected to the computer's printer port, LPT1, and then up to 4 motor interface modules can be connected and operated independently at the 4 interface outputs.

### Specifications:
- **Power Output:** 750mA continuous
- **AC range:** 5 - 30V
- **5 dry-contact inputs**
- **1 logic open collector output**
- **Power supply:** 10 - 30VAC
- **Dimensions:** 117 x 65.5 x 25mm

### Specifications:
- **Power supply:** 10 - 30VAC
- **Power output:** 750mA/motor
- **1 logic open collector output**
- **6 dry-contact inputs**
- **Power input:** 5 - 30V
- **Dimensions:** 140 x 100 x 30mm

### Specifications:
- **Power output:** 10V, max 2A
- **Supply voltage:** 5 - 12Vdc
- **Stepping frequency:** 2-1000Hz
- **Dimensions:** 120 x 50 x 24mm

### Specifications:
- **Power Output:** 750mA
- **AC range:** 5 - 30V
- **5 dry-contact inputs**
- **1 logic open collector output**
- **Power supply:** 10 - 30VAC
- **Dimensions:** 117 x 65.5 x 25mm
- **GB799 Stepper Motor Driver 6 Wire**

### Specifications:
- **Power Output:** 750mA
- **AC range:** 5 - 30V
- **5 dry-contact inputs**
- **1 logic open collector output**
- **Power supply:** 10 - 30VAC
- **Dimensions:** 117 x 65.5 x 25mm
- **GB799 Stepper Motor Driver 6 Wire**

### Specifications:
- **Power output:** 10V, max 2A
- **Supply voltage:** 5 - 12Vdc
- **Stepping frequency:** 2-1000Hz
- **Dimensions:** 120 x 50 x 24mm

### Specifications:
- **Power Output:** 750mA
- **AC range:** 5 - 30V
- **5 dry-contact inputs**
- **1 logic open collector output**
- **Power supply:** 10 - 30VAC
- **Dimensions:** 117 x 65.5 x 25mm
- **GB799 Stepper Motor Driver 6 Wire**

### Specifications:
- **Power output:** 10V, max 2A
- **Supply voltage:** 5 - 12Vdc
- **Stepping frequency:** 2-1000Hz
- **Dimensions:** 120 x 50 x 24mm

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- **GB799 Stepper Motor Driver 6 Wire**
Servo Driver - PIC16C711 1-4 motors kit

This is a servo motor driver kit. It will separately control up to 4 servo motors. The motors themselves are black boxes which contain a motor, gearbox and decoder electronics.

Specifications:
- Supply voltage: 5Vdc
- Supply current: 1A max
- Number of channels: 4

Electronic kits and modules > Radio Transmitters

AB095 FM Telephone Transmitter Kit

This kit is to be attached to the telephone line with the supplied alligator clips. When there is a signal on the line, (when you pick up the handset), the circuit will transmit the conversation over a short distance, in the 86-95MHz FM band.

Specifications:
- Trigger current: 4.3mA
- Dimensions: 75 x 86 x 25mm
- Frequency can be adjusted.

AB096 9V FM Transmitter Kit

This FM transmitter kit has improved frequency stability and range. The frequency is tuned within 89 - 109MHz FM band using a trimcapacitor. The user can experiment with the antenna length for optimum distance.

Specifications:
- Supply voltage: 9Vdc
- Frequency range: 90 - 108MHz
- PCB dimensions: 16.5 x 26mm

EB610 Miniature Bug - FM Radio Transmitter Kit

(Kit) This FM transmitter is a miniature version of the kit (AA218) that only makes use of normal passive components.

Specifications:
- Supply voltage: 9Vdc
- Frequency range: 90 - 108MHz
- PCB dimensions: 16.5 x 26mm

EB625 Servo Driver - PIC16C711 1-4 Motors Kit

(Kit) This is a servo motor driver kit. It will separately control up to 4 servo motors. The motors themselves are black boxes which contain a motor, gearbox and decoder electronics.

Specifications:
- Supply voltage: 5Vdc
- Supply current: 1A max
- Number of channels: 4

AB341 Transmitter Module TX433N

This is a compact AM radio transmitter module with SMD components. It is suitable for remote controls and telemetry over a distance of up to 15m, single direction. No adjustments are required. It has a stable output carrier frequency.

Specifications:
- Supply voltage: 3 -12Vdc
- Supply current: 45mA/12Vdc
- Carrier frequency: 433.92MHz
- Baud rate: 8 kbit/sec max
- pin numbers: GND, data in, Vcc, ANT
- RF output power: 10mW
- Dimensions: 17 x 10 x 4mm

Video Modulator

This is a minikit has excellent sensitivity, four station presets with confirmation beep, soft fade-in of last audio level at switch-on, restore of the last selected station at switch-on and a single button station search function.

Features:
- HQ FM receiver module with excellent sensitivity
- High button station search function

AB026 22 TV Channel Audio-Video Modulator

(Module) This is a low cost CATV circuit for transmitting high-quality audio/video signals in the UHF band. Input signals can be fed from video cameras, tuners, video tape players, etc. It can make use of the signal lines that are available on standardised output connectors.

Specifications:
- Supply voltage: 5Vdc
- Supply current: 90mA
- Output carrier frequency: 479.5MHz
- RF output power: 2mW
- Dimensions: 29.5 x 25.5 x 8mm

AA218 FM Transmitter with 3 Stages 9VDC Kit

(Kit) This is one of the most powerful FM transmitter. Easy to build and tune in the upper part of the FM band. Full circuit schematic provided with the kit.

Specifications:
- Supply voltage: 9Vdc
- PCB dimensions: 17 x 70mm

Electronic kits and modules > Radio Receivers

JH050 Digitally Controlled FM Radio

This HQ reciever minikit has excellent sensitivity, four station presets with confirmation beep, soft fade-in of last audio level at switch-on, restore of the last selected station at switch-on and a single button station search function.

Features:
- HQ FM receiver module with excellent sensitivity
- High button station search function
AB342 Antenna Amplifier 30 - 850 MHz

This is an antenna amplifier kit that covers a wide frequency range. It may be used to amplify low power VHF/UHF television signals and for amateur radio bands.

Specifications:
- Supply voltage: 9 - 12Vdc
- Frequency: 30 - 850MHz
- Input/ output impedance: 60 ohm
- Input and output impedance: 57 - 75 Ohm
- Amplification: 20dB max
- Board dimensions: 55 x 55mm

Not included:
Coaxial cable (AE064 or AE067)

MB095 Antenna Amplifier 30 - 850 MHz

This is a compact, FM, super-heterodyne radio receiver module. It makes use of thick-film hybrid circuit technology and SMD components. A single mixer stage is used in the FM demodulation process.

Features:
- EN 300 220 ratifiable
- Miniature SIL PCB

Specifications:
- Supply voltage: 3Vdc
- Supply current: 15mA max
- Carrier center frequency: 433.8MHz

FB583 Converter 100 to 200 MHz

(Kit) The converter makes it possible to receive, for example, taxi radio, amateur radio, marine radio broadcasting, television sound etc. Through an ordinary VHF-radio. The converter has simple to be placed within the antenna lead.

Specifications:
- Operating voltage: 9 -12V/DC
- Sensitivity: up to 0.8µV at 10dB
- Board dimensions: approx. 85 x 95mm

This is an antenna amplifier kit for AM/FM radios. It is used where additional antenna signal amplification is required, for example: for a car radio or hifi tuner at home.

Specifications:
- Supply voltage: 12 - 15Vdc
- Supply current: 1 - 3mA

PB209 AM Radio with Amplifier + Speaker 9V Kit

(Kit) A complete AM radio on a single PCB. The radio frequency is front end tuned. A single chip is used for the RF amplifier and a detector and two stages of amplification of the audio signal into a speaker. The tuning coil is pre-wound. A speaker and components are included.

Supply voltage: 9Vdc

GB586 FM Radio

This is a very easy to assemble FM radio kit. It has no coil to wind. It receives the FM band 88 - 108MHz.

Features:
- Double fun: building and listening
- Easy to assemble: no coils to wind
- One single adjustment
- Pre-assembled and tested FM front-end

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PAL (composite video) and NTSC (S-video) formats.

**Features:**
- Digitally cleans the video signal/removes unwanted distortion in video signal
- Stabilises picture quality and luminance fluctuations
- Improves picture quality on LCD monitors or projectors
- S-video and composite video input and output
- LED indication when distorted video signal detected
- For PAL/NTSC video

**Specifications:**
- Supply voltage: 9Vdc
- Supply current: 100-300mA
- Dimensions: 106 x 101 x 44.5mm

**Video Signal Cleaner Kit**

This kit is used to clean a video signal and remove unwanted distortion. It stabilises the picture quality and fluctuations in brightness.

**Features:**
- Digitally cleans the video signal/ removes unwanted distortion in video signal
- Stabilises picture quality and luminance fluctuations
- Improves picture quality on LCD monitors and projectors
- S-video and composite video input and output
- LED indication when distorted video signal is detected
- For PAL/NTSC video

**Specifications:**
- Supply voltage: 9Vdc
- Supply current: 100-300mA
- Dimensions: 106 x 101 x 44.5mm

**Audio/Video TV Modulator (Kit)**

If it is desired to connect a video signal originating from a camera or other video source to a normal TV set, you will need this modulator. It has two RCA outputs, one for an audio signal and the other for video signal. The audio and video signals are converted into a UHF TV signal so that the signal can be received through the TV antenna input.

**Specifications:**
- Supply voltage: 12 - 15Vdc
- Supply current: 100mA
- Dimensions: 70 x 104 x 30mm

**22 Channel CATV Amplifier**

Linear CATV amplifier module for high quality audio/video signal amplification. It operates on the UHF TV channel 22. The RF input signal can be derived from the audio/video modulator (AB026). A standard TV can receive the amplified RF output signal.

**Specifications:**
- Supply voltage: 12Vdc
- Supply current: 100mA
- Operating carrier frequency: 479.5MHz
- RF Output power: 19dBm
- Dimensions: 38.2 x 22 x 4.2mm

**22 Channel CATV Amplifier**

**Alarm Display**

(Kit) In this alarm display, there are 2 fitted different coloured light emitting diodes which flash alternately in short sequences. For use in cars, weekend-houses, etc, in order to simulate an armed alarm set.

**Specifications:**
- Operating voltage: 9 - 12V/DC
- Board dimensions: approx. 22 x 27mm

**LED Emergency Kit 6 to 15V**

This kit may be used to mark emergency exits. If its operating voltage for the LED breaks down, the Gold-cap-capacitor supplies the LED with power to light up to 15 minutes. Supply voltage: 6 - 15Vdc/ac.

**Paralyser 10000 Volt**

(Kit) With the aid of this device, it is possible to produce high voltage pulses of more than 10000V. These high voltage pulses strike through clothing and provide an ideal self defence weapon. The attacker will have a shock.

**Specifications:**
- Supply voltage: 9Vdc
- Supply current: >160mA
- Supply voltage: 10 000V max.
- Frequency of sparks: >3 sparks per second
- Dimensions: 56 x 65 x 20mm

**Car Alarm Simulator**

(Kit) A flashing LED with realistic-appearing sequence, simulates an active alarm system.

**Features:**
- Activates automatically when the engine is turned off
- Easy installation with two wires
- Adjustable sensitivity

**Specifications:**
- Supply voltage: 12Vdc
- Supply current: 12mA
- PCB dimensions: 57 x 45mm

**Video Signal Cleaner**

**Car Alarm Simulator**

**Alarm Sensor Simulator**

(Module) Scare off possible intruders with this low cost alarm stimulator. It has a realistic looking flash sequence. It can run for months on a single AA battery. It may be wall mounted or desk-top operated. Ideal for home protections, cars, shops, cabins etc.

**Features:**
- Realistic looking flash sequence
- Runs for months on a single AA battery
- Complete with enclosure and fixation strip
- Wall mounted or desktop operation
- Applications: protect homes, shops, cars, cabins, trailers etc

**Specifications:**
- Power supply: 1.5V AA battery
- Power consumption: 3mA (when flashing)
- Dimensions: 80 x 55 x 33mm

**Alarm Sensor**

**Alarm Display**

**Electronic kits and modules > Security > Alarm Intrusions and Deterrents**

**Modular Security System**

**Security Modules**

**Alarm Display Kit**

**Paralyser 10000 Volt**

**Car Alarm Simulator**

**Video Signal Cleaner**

**Audio/Video TV Modulator**

**Paralyser 10000 Volt**

**Alarm Sensor**

**Alarm Display**

**Electronic kits and modules > Security > Alarm Intrusions and Deterrents**
This **kit**, when used together with an additional 230V-12V transformer, produces high voltage pulses that may be as large as 3000V. It is used to make weaker type of electric fence instrument that is only suitable for smaller fences.

**Specifications:**
- Operating voltage: 6VDC
- Average power consumption: approx. 100mA, on average, up to 1.5A in pulse strikes
- Board dimensions: approx. 45 x 21mm

**Not included:**
- Heatsink (AC824)
- Nut, bolt, washer, insulators
- Transformer (AC658)

![Electronic Fence Appliance](image)

**Electronic kits and modules**

> Security > Access Control

**FB603 Electronic Fence Appliance**

This **kit**, when used together with an additional 230V-12V transformer, produces high voltage pulses that may be as large as 3000V. It is used to make weaker type of electric fence instrument that is only suitable for smaller fences.

**Specifications:**
- Operating voltage: 6VDC
- Average power consumption: approx. 100mA, on average, up to 1.5A in pulse strikes
- Board dimensions: approx. 45 x 21mm

**Not included:**
- Heatsink (AC824)
- Nut, bolt, washer, insulators
- Transformer (AC658)

**VM623 Safe - Style Code Lock**

**Features:**
- Codelock with rotary encoder and 7-segment display. It is however impossible to determine the pressed keys due to the use of digital rotary encoder. Amongst other uses, it can be used to open a door or gate, arm/disarm your alarm system and prevent unauthorised use of car, entertainment system etc.

**Features:**
- Codelock with rotary encoder and 7-segment display
- 4 digit code
- Several operating modes
- Adjustable pulse duration
- Applications: open door, gate, fence etc. Arm/disarm alarm system. Prevent unauthorised use

**Specifications:**
- Power supply: 12Vdc/100mA max
- Relay output NO/NC: 3A/24 Vdc max
- Dimensions: 85 x 85mm

**AA238 Combination Lock Kit**

**Features:**
- An introduction to a basic but fully working combination lock. Separate touch pad with 9 pads. Lock is reset if an incorrect digit is pressed. Supply voltage: 12Vdc.

**Specifications:**
- More than 3000 codes (4 digits)
- Relay output: 5A/220V
- Time limit for code entry: ±5 seconds
- Power supply: 9-15Vdc or 8-12VAC
- Power consumption: 40mA (output on) 0.3µA (output off)
- Dimensions: 80 x 80 x 40mm

**GB776 Mini-Fence-High-Voltage Generator Module**

This module generates 1000V, low power pulses. It should be connected to electric-fencing. It is not meant to deter buglars. It is useful though for keeping small animals bound or out of a garden with electric fencing around it. The two high voltage wires must be simultaneously connected to the bare feet, tongue, snout or other part of the small animal to induce electric shock.

**Specifications:**
- Power supply: 9-12Vdc
- Power consumption: 40mA
- Output voltage: pulsating max. 1000V/0.5 joule
- Pulse frequency: 1 pulse per second
- High voltage display: LED
- High voltage cable length: max. 100m
- Dimensions: 50 x 72 x 42mm

**AF091 Proximity Card Reader**

**Features:**
- Store up to 25 tags
- Excellent security: 64-bit coded security device. It has an easy addition or removal of tags. It can be used to open doors, gates, security systems, prevent unauthorised usage of equipment, computer etc.

**Specifications:**
- Power supply: 12Vdc/100mA
- Relay output: 3A/24V max
- EM4100 compatible
- Dimensions: 66 x 62 x 20mm
GB795  Electronic Card
Switch Module

This device optically reads the coding on a card and switches a relay if the coding is correct. It can be used by a selected few in order to switch devices, machines, alarm systems etc. Identical cards are supplied and their coding can be changed. The card will be read optically by 4 infra-red read-heads and will solely react on the correct card.

Specifications:
- Supply voltage: 9Vdc
- Supply current: 150mA
- Relay output: 1A/48V (SPST) max.
- Operating mode: optical with 4 infrared-reflex reading heads
- Card dimensions: 85 x 54mm
- Module dimensions: 80 x 35 x 70mm

FB529  Sensor Number Lock

(Kit) By touching the correct numbers, a relay will operate. In a case whereby false numbers are entered, the lock will block automatically for some time. Ideal for opening doors and gateways without keys, to switch electronic devices which should not be operated by unauthorised persons. Supply voltage: 12Vdc

GB562  Infrared spotlight for
CCD cameras module

(Kit) When holding the supplied key pendant in front of the sensor, a relay on the circuit switches on. For use in non-contact door opener to switch appliances. You may hide the sensor behind a door pane so that only the insiders know at which point you have to hold the key pendant in order to open the door. The key pendant does not require a battery.

Specifications:
- Supply voltage: 12Vdc
- Supply current: 0.1mA
- Board dimensions: approx. 55 x 46mm

AD309  PIR Movement
Detector Module 12V

This is a pyroelectric sensor module that is designed for detecting movement of humans. A fresnel lens, a PIR sensor, amplifier, logic circuit and regulator are mounted together onto a compact PCB. It is suitable for activating automatic lighting systems and intruder alarms. The module has an active low level, open collector output.

Specifications:
- Supply voltage: 12Vdc
- Detection range: 2-5m
- Power Up time delay: 25 sec.
- Lens diameter: 24mm
- Dimensions: 28 x 28 x 24mm

EB614  PIR Movement
Detector Module 5V

(Kit) After typing any four figure number, the relay will pull up. The code number can be programmed freely and is easily changed. Ideal as a doorlock without using key, to switch on devices etc. Operating voltage: 6Vdc

Specifications:
- Supply voltage: 4-12Vdc
- Detection range: 2m
- PIR input gain: 68dB
- Power up time delay: 25 sec
- Output pulse width: 0.5 sec
- Dimensions: 25 x 35 x 20mm

FB546  Digital Number Lock
with Keyboard 6V

(Kit) With the infrared spotlight CCD-cameras may recognize objects also in complete darkness. The infrared light is invisible for men, CCD-cameras can see well with an infrared spotlight. Perfect for inconspicuous observation of entrances, drives etc.

Specifications:
- Operating voltage: 12 -15VDC
- Current consumption: < 300mA
- Range: 5m max
- Wavelength: 875nm (approx)
- Dimensions: 72 x 50 x 18mm
The car alarm kit can detect sudden voltage drops of the battery when the interior, trunk, or hood lights are switched on. To ensure correct operation, a number of control indications have been included such as: flashing LED to indicate that the alarm is on standby note after a set time. Pre-alarm (built-in-buzzer) to indicate that the alarm is activated, so that you don’t forget to switch it off. The alarm is easy to switch on & off, either automatically or by means of the ignition switch or a remote control unit.

**Specifications:**
- Power supply: 12V battery
- Standby current: 25mA
- Detects voltage drops of the battery
- Entry delay time: (2 to 30 seconds, with buzzer indication)
- Exit delay time: (2 to 180 seconds with LED indication)
- Alarm period: 60 seconds with automatic reset
- Power supply: 12V
- Standby current: 25mA
- Relay output: 5A
- PCB dimensions: 62 x 100mm

**Features:**
- Buzzer output: fast/continuous
- Distance indication with 3-LED bar
- Adjustable alarm distance
- LED alarm indicator
- Dry contact NO/NC relay

**AB684 Ultrasonic Movement Detector II Kit**

This kit is ideal for detecting movement through a doorway. It has a light emitting diode that lights up when movement is detected. Use a plug in DC supply like (AA729). Operating voltage: 9 - 12Vdc.

**Specifications:**
- Power supply: 5V +/- 0.5V
- Sensor used: OVS116
- Dimensions: 16mm square by 15mm

**FB089 Ultrasonic Detector**

(Kit) This is a low cost, low power and very small camera module. Only five pins needs to be connected. High voltage regulated circuit essential.

**Specifications:**
- Power supply: 12VDC
- Current consumption: 200mA max
- Frequency: 40kHz
- Range: 20 - 250cm
- Digital output: 5V (50mA)
- Analogue output: 0-5V (5mA)
- Relay contacts: 1A low voltage NO/NC
- Buzzer output: 12V/ 100mA max
- Dimensions: 110 x 50 x 18mm

**FB648 Ultrasonic Distancer Alerter / Alarm**

(Kit) The LED lights up if a body approaches the ultrasonic sensors at a distance of 10 to 80cm. Ideal to use as a parking assistance for cars in garages, alarm signal for persons or animals staying in a particular area etc. The device works according to the same principle as the ultrasonic echo ranging of bats.

**Specifications:**
- Operating voltage: 9 - 12Vdc
- Frequency: approx. 40kHz
- Range: approx. 10-80cm depending on the size of the body
- Display: LED
- Current consumption: <10mA
- Board dimensions: approx. 55 x 45mm

**GC038 Car Alarm**

**Electronic kits and modules > Security > Ultrasonic**

**VK525 Parking Radar Module 12VDC 2.5m**

This module can be used in various applications like robot projects, object detection, distance measuring, parking aid, security systems etc. It has an adjustable alarm distance and LED alarm indicator.

**Specifications:**
- Power supply: 12VDC
- Current consumption: 12mA
- Range: 20-250cm
- Frequency: 40kHz
- Digital output: 5V (50mA)
- Analogue output: 0-5V (5mA)
- Relay contacts: 1A low voltage NO/NC
- Buzzer output: 12V/ 100mA max
- Dimensions: 110 x 50 x 18mm

**AB097 Ultrasonic Movement Detector I Kit**

This kit is useful for detecting movement within 4m range in 40 degree cone infront of the sensor. The LED lights up and a transistor output goes low when movement is detected. Operating voltage: 9 - 12Vdc.

**Specifications:**
- Supply voltage: 9 - 12Vdc
- Supply current: 100mA
- Mini-loudspeaker: 100mW/100 ohm

**Not included:**
- Reed switch (MB163)
- Panic button (HB015)

**FB624 Mini Alarm System**

(Kit) This alarm unit is ideal for protecting drawers, cupboards and for children's rooms. It is possible to connect as many alarm sensors as possible.

**Specifications:**
This is a series of digital sensor module using OmniVision’s OV9653 mega-pixel CMOS image sensor. The digital video port provides full-frame, sub-sampled or windowed 8/10 bit images. Camera functions are programmable through serial camera control bus.

**Specifications:**
- Resolution: SXGA 1.3M pixels 1300 x 1028
- Lens format: 1/4"
- Lens: F6.5mm F3.2
- Module size: 41 x 31mm

### Electronic kits and modules

#### Timers

#### Single Delay Timers

- **AD434 Power Saver / Timer**
  
  (Kit) This is a mains powered, monostable, timer kit. Use it to save power, money and increase safety by automatically turning off your equipment after a preset time. The timer will power your sprinkler, lighting or heater for the preset turn-off time delay and then turn off. Operate this timer with a single push-button and an on-board jumper.

  **Specifications:**
  - Available timers: 1h/2h/4h/8h/24h
  - Relay output: 10A/240VAC max.
  - Power supply: 100 - 240VAC
  - Dimensions: 80 x 70 x 25mm

- **GB584 Kitchen Timer**

  This kit can be used for 1 minute to 1 hour timing. It makes use of microcontroller technology. Audible and visible alarm with discrete pre-alarm. Attractive design.

  **Specifications:**
  - Power supply: 3x AAA 1.5V

- **AB108 Three Timer Kits in One Kit**

  This is a set of 3 monostable timers consisting of the following kits: EB620; EB619 and PB211

- **PB211 Time Switch 8 to 8192sec - 2.3 hour Kit**

  This is a long duration monostable timer kit. The 555 timer IC is used as an astable oscillator that is set to 1Hz. The 555 output drives a 4020 IC that is a 14 stage binary ripple counter.

  **Specifications:**
  - Supply voltage: 12Vdc
  - Output relay: 240V/10A
  - PCB dimensions: 53 x 58mm

- **GB800 Time Switch 12-15VDC Module**

  This electronic timer-switch module may be used for exposure devices, battery charger timing, machines, toys etc. It connects other devices by means of the installed, potential-free relay switch. The relay connects at the beginning of a timing cycle after the start push-button has been pressed and disconnects again automatically at the end of the preset time.

  **Specifications:**
  - Supply voltage: 12-15Vdc
  - Supply current: 20mA (relay off) 55mA (relay on)
  - LED indication when the relay is on
  - Relay contact rating: 2A/240V

- **GC04 Universal Start/Stop Timer**

  This is a compact timer kit with one start and one stop push-button switch. It also has an adjustable time delay between 1 sec and 15 minutes.

  **Specifications:**
  - Supply voltage: 12Vdc
  - Supply current: 20mA (relay off) 55mA (relay on)
  - LED indication when the relay is on
  - Relay contact rating: 2A/240V

- **GC104 Fan Timer**

  This mains powered timer kit is controlled with one 230V rated switch. It has a triac output for driving 230Vac fan motors and lighting.

  **Features:**
  - Suitable for most types of fans
  - Solid state switching with noise suppression
  - Can be connected to existing installation
  - LED function indication
  - Can also be used as a standalone fan delay timer

  **Specifications:**
  - Supply voltage: 230Vac
  - Output current: 1A
  - LED indication
  - Adjustable time delay: 10 sec to 5 min
***Mini-Timer***

180 Precision Timer 0 to 15 Programmable Adjustable time switch for Precision Short It can be used for the

This pause timer has an easy time setting and a wide timing range. It can be used in blinking of lights, pulsed operation of buzzers, automatic irrigation, lawn sprinklers, toilet flashing or ventilation, battery charging time control and even in cyclic operation of equipment. **Features:**

- Wide timing range
- Easy time setting
- Start with ‘pulse’ or ‘pause’
- 'Single shot' or 'loop' selection
- Applications: blinking of lights, pulsed operation of buzzers, Automatic irrigation, Lawn sprinklers, ventilation, Battery charging time control, cyclic operation of equipment

**Specifications:**

- Power supply: 12 - 24Vdc
- Relay contact: 16A max
- Dimensions: 80 x 45 x 22mm

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**FB625 Mini-Timer**

(Kit) Whenever the on-board tactile push-button switch is pushed, the LED will light up. The LED remains on for as long as the button is being pressed. The time delay starts immediately after the button has been released. **Specifications:**

- Supply voltage: 9Vdc
- Supply current: 19mA (LED on)
- 11mA (LED off)
- Time delay: 100 - 180 seconds

**EB619 555 Timer Circuit Kit**

(Kit) This is a classic monostable 555 timer circuit that switches a relay for an adjustable period of time. The time delay is determined by the values of the capacitor and resistor connected to the 555 IC. **Specifications:**

- Supply voltage: 12 - 15Vdc
- Timing range: 1 sec to more than 5 minutes
- Output relay: 240V/10A

**EB620 RC Capacitor Discharging Timer Kit**

(Kit) This is a classic monostable, RC timer circuit that makes use of discharging electrolytic capacitor which determines its timing. **Specifications:**

- Supply voltage: 12 - 15Vdc
- Timing range: 2 - 400 seconds
- Relay contact rating: 10A max

**GB769 Automatic Light Switch 230V Module**

This electronic timer-switch module may be used for automatic staircase lighting, for exposure devices, alarm alert timing etc. It has a built in potential-free, SPDT relay switch that can be used to switch other devices on or off. The relay gets activated after a start push button has been pushed and automatically switches off. **Specifications:**

- Power supply: 230Vac
- Switching capacity: 3A/230Vac
- Timing duration: 1 sec. to 30 min.

**AB130 Programmable Timer +FirmwareModules**

(Kit) This 4 digit, programmable, down counting, timer kit makes use of a preprogrammed microcontroller. It has 4-digit, 7 segment, red, 14mm LED display. **Specifications:**

- Supply voltage: 9 -12Vdc
- Supply current: 50mA max

**Electronic kits and modules > Timers > Periodic Timers**

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**FB532 Precision Short Timer Approx. 0 to 5min**

(Kit) After pushing the on-board tactile switch, the relay will switch on for an adjustable time delay and then switch off again. **Specifications:**

- Supply voltage: 12Vdc
- Supply current: 40mA
- Adjustable time delay: 2 sec. to 5 minutes
- Relay contact rating: 3A/25V

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**JH049 1 Sec. to 60 Hours Pulse-Pause Timer Kit**

This electronic timer-switch module may be used for automatic staircase lighting, for exposure devices, alarm alert timing etc. It has a built in potential-free, SPDT relay switch that can be used to switch other devices on or off. The relay gets activated after a start push button has been pushed and automatically switches off. **Specifications:**

- Power supply: 230Vac
- Switching capacity: 3A/230Vac
- Timing duration: 1 sec. to 30 min.

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**AD607 Interval Timer Module**

This is a periodic interval timer module. It can be used for the intermittent switching of circuits and equipment: blinking light, video/ photo shooting, slide projector control, miniature models etc. The module has a 555 IC, used as an astable oscillator that switches the on-board relay switch on and off periodically. **Features:**

- Blinking light, warning light
- Video/photo single frame shooting
- Slide projector control
Miniature models applications

Automated testing

Specifications:
- Supply voltage: 12 -15Vdc
- Supply current: 100mA
- Adjustable pulse time: 0.5 to 5 sec.
- Adjustable pause time: 2.5 to 60 sec.
- Relay contact rating: 3A/24V max
- Dimensions: 40 x 58 x 25mm

Multifunctional

Multi-Mode Timer Kit

This multifunctional timer kit consists of two parts that is:
- Interval Timer Kit
- Oscilloscope Tutor kit

- Signal Tracer /
- EB844
- VN579
- JH039
- AB126
- EB437
- www.electronics123.co.za

- AB126 Multi-Mode Timer Kit

- This is a programmable, multifunctional timer kit. It makes use of a preprogrammed microcontroller. It has 7 timing modes and 4 time delay ranges that are selected with on-board DIP switches.

- Specifications:
  - Supply voltage: 12Vdc
  - Supply current: 300mA

- Electronic kits and modules

- > Testing Instruments and Devices

- JH039 Oscilloscope Tutor kit

- This tutor kit helps the user get most out of his/her digital oscilloscope. Its features includes: alternating AC current, smoothed direct current, full and half wave rectified AC.

- Features:
  - Alternating current (AC)
  - Adjustable AC
  - Full and half wave rectified AC
  - Smoothed direct current (DC)
  - Ripple
  - Astable oscillator

- EB437 Signal Tracer / Injector Kit

- This is a signal tracer/ injector kit. It is a valuable testing instrument for repairing faulty amplifiers, radios, tone controls etc. It is used to inject a known audio signal into any audio circuit and trace for this signal in order to detect circuit faults. The specifications of the device are listed in the information leaflet of the kit.

- Specifications:
  - Signal injector
    - 0-2.5Vrms output (adjustable)
    - output impedance: 1.5k ohm Frequency: ±1kHz
  - Signal tracer
    - 3.5mV to 10Vrms sensitivity
    - Gain: 40dB
    - Input impedance: 50k ohm
    - Output power: 0.5W / 8 ohm
    - Power supply: 7-9VAC or 9-12VDC /150mA
    - Dimensions: 60 x 53mm

- GC077 Multifunctional Relay Module

- This is a programmable, multifunctional 230Vac timer plug-in kit with an output relay switch. It uses a preprogrammed microcontroller. It is suitable for control of incandescent lighting, halogen lighting, fluorescent lighting, fans, valves, buzzers etc.

- Specifications:
  - Supply voltage: 110 - 125Vac or 220 -240Vac 50/60 Hz
  - Output current: 2.5A
  - Output relay: 2.5A/220Vac contact rating
  - Dimensions: 65 x 57 x 30mm

- VN579 Start-Stop Timer Module (1s - 60h)

- This start-stop timer module has a wide timing range. It has easy time setting, LED animation during operation, on-board start-stop buttons, it is non retriggereable. It’s time setting is easy.

- Features:
  - Wide timing range
  - Easy time setting
  - LED animation during operation
  - On-board start/stop buttons
  - Non retriggereable
  - Power-on trigger is possible
  - Debounced buffered inputs avoid false triggering
  - Compact size
  - Front panel mountable

- Specifications:
  - Power supply: 12VDC / 100mA
  - Adjustable delay: 1s- 60hrs
  - NO/NC relay: 24 VAC/DC 3A max
  - Dimensions: 70 x 45 x 20mm

- GB607 Cable Polarity Checker

- This kit consists of two parts that must be connected to the ends of a pair of cables. It has four indicator LEDs to check cables for continuity, check for open circuits etc.

- Specifications:
  - Power supply: 9V battery
  - Supply current: 10A max
  - Remote board: 40 x 7mm
  - Main board dimensions: 56 x 40 x 33mm

- GC102 Multifunction Relay Switch

- This is a periodic interval timer kit. It can be used for the intermittent switching of circuits and equipment: blinking light, slide projector control etc.

- Specifications:
  - Supply voltage: 12 - 15Vdc
  - Supply current: 100mA
  - Relay contact rating: 3A/24V
  - Adjustable Pulse Time: 0.5 to 5 seconds
  - Adjustable Pause Time: 2.5 to 60 seconds
  - LED indicator: Shines during pulse times

- Memory loss if the power is removed. Functions are selected with 4 on-board DIP-switches. The specifications and features of the kit are listed in the information leaflet of the kit.

- Specifications:
  - Operating voltages: 9-12Vac/Vdc
  - Max. Load: 5A (1100W/230V; 550W/115V)
  - Dimensions: 87 x 39 x 26mm

- EB844 Interval Timer Kit

- This is a periodic interval timer kit. It can be used for the...
(Kit) With this device one can easily check for electric current in mains voltage wiring. It can be used to search for wires installed in or behind walls or to trace interruptions in wiring. A flashing LED indicates whether voltage is present or not. The flashing rate of the LED gives an indication of how close by the wire is.

**Specifications:**
- Supply voltage: 9V battery (not incl.)
- Detection of mains conducting cables
- LED indication (buzzer optional)
- Adjustable detection distance: max 10cm
- Distance indication
- PCB dimensions: 56 x 64mm

This LED (light emitting diode) tester may be used to determine the functionality, brightness, colour and polarity of various types of LEDs. The LEDs may be also be tested using the following DC currents: 1mA, 2.5mA, 5mA, 10mA, 20mA and 50mA. The two leads of the LED are easily inserted into the chosen test-current contacts even when covered with residual solder. The brightness of any two LEDs may be compared by using the two 10mA test sockets that are set side by side.

**Specifications:**
- Supply voltage: 9V battery
- Dimensions: 58 x 44 x 27mm

(Kit) A continuity tester is one of the most useful pieces of test equipment to have. It is used for testing the electrical continuity between two points. It will buzz when measuring an electric resistance below specified value. Supply voltage: 9V battery

(Kit) This is the most important piece of equipment for testing and measuring digital equipment. It is usually used in fault finding and testing but may also assist in design work and to find out how digital equipment works.

**Specifications:**
- Dimensions: 410 x 175 x 75mm
- Power supply: 2 x AA batteries (not incl.)
- Transmission: gear drive operation
- Supplied with: pre-punched boards, gearbox, gears, shafts, switch, motor, battery holder and all the necessary parts

**Electronic kits and modules > Robotics > Mechanical kits**

This mechanical kit helps one familiarise him/herself with the operation of transmissions steered through gears or pulleys. It is easy to build, neither glue nor soldering is required. It is supplied with pre-punched boards, gearbox, gears, shafts, switch, motor, battery holder and all the other necessary parts. The instructions are easy to follow.

**Specifications:**
- Dimensions: 410 x 175 x 75mm
- Power supply: 2 x AA batteries (not incl.)
- Transmission: gear drive operation
- Supplied with: pre-punched boards, gearbox, gears, shafts, switch, motor, battery holder and all the necessary parts
It is well known that kids enjoy playing with aircraft symbolic toys. The device has wheels that allows it to move in the forward direction.

**Specifications:**
- Dimensions: 357 x 264 x 125mm
- Powered by: 2 x AA batteries (not incl.)

(Kit) This is a great Halloween gadget, it greets your visitors. Ideal for shops, events or just for fun. It responds to certain noises and has adjustable sensitivity.

**Specifications:**
- Battery operation: 2x AAA cells
- Dimensions: 137 x 68 x 50mm

This is a great accompaniment to your children’s everyday play time. The device can move forward on a flat surface.

**Specifications:**
- Dimensions: 218 x 95 x 150mm

This kit is symbolic to a racing car. It has four wheels that enables it to move forward on a flat surface.

**Specifications:**
- Dimensions: 240 x 85 x 95mm

The Titan Tank is an electronic robot kit controlled with a multichannel IR (infra-red) remote control. It was designed to do a battle against other Titan Tanks by shooting its opponents with invisible IR light beams. The 4 channel IR remote control makes it possible to have up to 4 tanks in a battle.

**Features:**
- Put up to 4 tanks into battle with each other using the multichannel IR remote control
- Each Titan Tank will recoil and make shooting sound effects when firing
- Titan Tank will automatically turn around when shot by another. When shot 4 times, the Titan Tank will continue to turn around and produce a siren sound
- 6-wheel drive allows each Titan Tank to move and turn smoothly
- No soldering required
- Kit comes with pre-assembled PC boards and all mechanical parts
- Recommended age: 14+

**Power supply:**
- 4 x 1.5V AA cells AB748 for (Remote control)
- 4 x 1.5V AAA cells ACS89 for (Titan Tank)

Have fun assembling this robomech kit, with the instructions thereof clearly and chronologically listed. The robomech walks straight on a flat surface.

**Specifications:**
- Dimensions: 80 x 90 x 210mm
- Transmission: gear drive operation

The Robot car makes use of a sound sensor. It usually moves straight forward, but each time the sensor detects noise or when the car bumps into an object it will reverse to the left and automatically go forward again. The kit contains one motor with a gear set.

**Specifications:**
- Power supply: 2 x 1.5V AA cells
- Dimensions: 90 x 115mm,

The Robot car makes use of a sound sensor. It usually moves straight forward, but each time the sensor detects noise or when the car bumps into an object it will reverse to the left and automatically go forward again. The kit contains one motor with a gear set.

**Specifications:**
- Power supply: 2 x 1.5V AA cells
- Dimensions: 90 x 115mm,
This is a robot kit for the future engineer. Build these kits and find out how much fun electronics and mechanics can be. The robot frog has a sound sensor. Control it by clapping your hands each time that you want to change the way it moves. Its motion changes sequentially with every clap according to the sequential order explained in the kit's user manual.

**Specifications:**
- Power supply: 2 x 1.5V AA cells and 9V battery
- Dimensions: 110 x 125mm, 80mm height

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This is a microbug with a choice of two different walks. Its adjustable light sensitivity suits almost any light intensity and makes it possible to control its 'bug-like' behaviour. It stops in total darkness.

**Features:**
- Two open-chassis subminiature motors
- Adjustable light sensitivity suits almost any light intensity and makes it possible to control it
- Adjustable speed
- Choice of two different walks
- LED 'eyes' indicate driving direction
- Stops in total darkness

**Specifications:**
- Power supply: 2 x 1.5V AAA cells
- Dimensions: 110 x 90mm

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It is an attractive bug-shaped miniature robot. The microbug stops in total darkness. It also has a choice of two different walks and adjustable speed.

**Features:**
- Two-open-chassis subminiature motors
- Adjustable light sensitivity suits almost any light intensity and makes it possible to control its 'bug like behaviour'
- Adjustable speed
- Choice of two different walks
- LED 'eyes' indicate driving direction
- Stops in total darkness

**Specifications:**
- Power supply: 2 x 1.5V AAA batteries

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The Scarab Robot is an attractive, bug-shaped, miniature robot that uses 2 touch sensors to detect obstacles. When its antennas (touch sensors) detect an obstacle, it will first step back and then automatically execute a two-step manoeuvre. The tactic is a combination of 'left turn', 'right turn', 'reverse' and 'stop.' It does so in an attempt to avoid bumping hard into obstacles or getting stuck. The robot uses six legs to move.

**Features:**
- Two open chassis subminiature motors
- LED 'eyes' indicate driving direction
- Stops in total darkness

**Specifications:**
- Power supply: 4 x 1.5V AAA batteries
- Dimensions: 175 x 145 x 85mm

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This robot never fails to find its way out of a maze. It uses 3 IR (infrared) emitting diodes to transmit invisible light and 1 IR receiver module to receive IR light that is reflected back. A built-in microprocessor enables it to process the gathered information on its immediate surroundings so that it can avoid bumping into obstacles.

**Specifications:**
- Power supply: 4 x 1.5V AAA cells (AC589)
- Dimensions: 140 x 150 x 100mm

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An attractive bright coloured bug-shaped miniature robot. The microbug is always hungry for light and travels towards it. It has LED 'eyes' which indicates the driving direction. It stops in total darkness. It uses two open chassis subminiature motors.

**Features:**
- Two open chassis subminiature motors
- LED 'eyes' indicate driving direction
- Stops in total darkness

**Specifications:**
- Power supply: 2 x 15V AAA batteries
- Dimensions: 100 x 60mm