

# velleman<sup>®</sup>

## projects

[www.velleman-kit.com](http://www.velleman-kit.com)  
[www.vellemaninstruments.com](http://www.vellemaninstruments.com)

velleman<sup>®</sup>-**kit** HIGH-Q

velleman<sup>®</sup> INSTRUMENTS

velleman<sup>®</sup> MODULES

2006 - 2007



## PREFACE

Although developments in the field of electronics proceed at breakneck speed, we have always been able to create the ideal mix between innovation and durability. The innovations are mainly expressed in our hand-held scopes and PC scopes, which are created with the aid of the latest techniques. Our kits and modules are marked by a more timeless character, e.g. our audio range of preamplifiers and power amplifiers. This range seeks to offer "high-end" products at affordable prices. - The Velleman projects team -

## SKILL LEVEL

■	□	□	□	□	□	beginner
■	■	□	□	□	□	hobbyist
■	■	■	□	□	□	advanced
■	■	■	■	□	□	master
■	■	■	■	■	■	specialist

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**COMING IN 2006**

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**RECOMMENDED TOOLS - WWW.VELLEMAN.BE**

SOLD100G, SOLDERDISP, VT100, VTS25N, VTSS4	p.15
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# velleman<sup>®</sup>

## INSTRUMENTS

**THE SOURCE  
FOR ALL YOUR MEASUREMENT NEEDS!**



(31;-1.2483)

## THREE-IN-ONE LAB UNIT

LAB1

new

**YOUR SPACE SAVING LAB SOLUTION!**



Contents: 1 multimeter, 1 power supply & 1 soldering iron  
this unit covers 99% of your home lab needs  
perfect solution for starters or schools

### DIGITAL MULTIMETER:

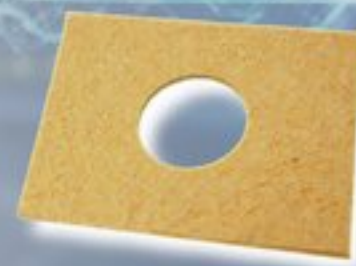
- 3 1/2 backlit LCD
- automatic polarity indication
- DC voltage: 200mV to 600V in 5 steps
- AC voltage: 200V and 600V
- DC current: 200 $\mu$ A to 10A in 5 steps
- resistance test: 200 ohm to 2Mohm
- diode, transistor and continuity test
- data-hold function and buzzer
- CATI 600V
- CATII 300V

### REGULATED POWER SUPPLY:

- selectable output voltages: 3 - 4.5 - 6 - 7.5 - 9 - 12Vdc
- output: 1.5A (2A peak)
- LED overload indication
- with output on/off switch
- very low ripple
- LED power indication

### SOLDERING STATION:

- low-voltage iron: 24V
- ceramic 48W heating element with temperature sensor
- temperature range: OFF - 150 - 450°C
- lead-free soldering possible
- supplied with sponge and spare bit



**LNB**  
3 IN 1 Home Labo Device



# Select your most suitable Velleman scope

**velleman**  
INSTRUMENTS



OSCILLOSCOPES RANGE	PCS10	PCS100(A)	PCS500(A)	PCSU1000
Number of channels	4	1	2	2
Maximum sample rate	100S/s	32MS/s	2 x 1GS/s	2 x 1GS/s
Maximum bandwidth	Slow signal	12MHz all ranges	50MHz all ranges	2 x 60MHz
Real time sample rate		32MS/s	2 x 50MS/s	2 x 50MS/s
Number of screen layouts	2	1	1	2
Screen size (pixels)	apr. 550x295	apr. 520x295	apr. 520x295	apr. 950 x510
LCD backlight				
Memory length (bytes)		4096	2 x 4096	2 x 4096
Resolution	8 bit	8 bit	8 bit	8 bit
Sensitivity Vpp	10mV	0.3mV	0.1mV	0.1mV
Volt /div range	3V to 30V range	10mV to 3V / 6 st	5mV to 15V / 8 st	5mV to 2V / 9 st
Maximum volt. with x 10 probe		120VDC incl ACp	600VDC incl Acp	30VAC + DC
Fastest time / div	1s	0.1µs	0.02µs	0.02µs
Slowest time / div	1000s	2000s	2000s	2000s
Data or screen to computer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PC Software	PC-Lab2000 CD	PC-Lab2000 CD	PC-Lab2000 CD	PC-Lab2000 SE
Operation through computer	USB	Opto isolated LPT	Opto isolated LPT	USB
Screen memories	PC harddisk	PC harddisk	PC harddisk	PC harddisk
Stand alone operation				
Oscilloscope probe included		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> x 2	<input checked="" type="checkbox"/> x 2
Recorder mode	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Spectrum analyser mode		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Bode plot option (+ PCG10)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
X position and Y position shift		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
X 10 probe calculation option				<input checked="" type="checkbox"/>
Adjustable trigger level		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
External trigger input			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pre trigger function			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Zoom function for time/div	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Auto set-up FULL				
Auto set-up SEMI		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Dynamic screen for markers				
Signal markers ( dt / dV / 1/dt )	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Audio power calculation				
Gain measurement				
dBm measurement		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
dBV measurement			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
AC only true rms display		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
AC + DC true rms display			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DC measurement	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
AC+DC max / min / pk to pk			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Duty Cycle / pos neg width			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Rise / Fall time			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Period / Frequency / Phase		Markers	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Auto power off option				
Battery / rechargeable battery				
Low battery indication				
Battery charge circuit				
Holster included (BAGHPS)				
Soft bag (GIB)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hard case (CASEHPS)				
Upgradeable firmware / software	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Panel mount type				



OSCILLOSCOPES RANGE	PPS10	HPS10 / HPS10SE	VPS10	HPS40	APS230
Number of channels	1	1	1	1	2
Maximum sample rate	10MS/s	10MS/s	10MS/s	40MS/s	2 x 240MS/s
Maximum bandwidth	to 2MHz	to 2MHz	to 2MHz	to 12MHz	30MHz (ex. 1&2mV)
Real time sample rate	1MS/s	1MS/s	1MS/s	5MS/s	2 x 60MS/s
Number of screen layouts	5	5	6	5	5
Screen size (pixels)	128x64	128x64	128x64	192x112	192x128
LCD backlight		White/Blue for SE	White/Blue	<input checked="" type="checkbox"/>	White
Memory length (bytes)	256	256	256	256	2 x 256
Resolution	8 bit	8 bit	8 bit	8 bit	8 bit
Sensitivity Vpp	0.1mV	0.1mV	0.1mV	0.1mV	0,03mV
Volt /div range	5mV to 20V / 12 st	5mV to 20V / 12 st	5mV to 20V/12st	5mV to 20V/12st	1mV to 20V / 14 st
Maximum volt. with x 10 probe	600VDC incl ACp	600VDC incl ACp	600VDC incl ACp	600VDC incl ACp	600VDC incl Acp
Fastest time / div	0.2µs	0.2µs	0.2µs	0.05µs	0.025µs
Slowest time / div	3600s	3600s	3600s	3600s	3600s
Data or screen to computer	<input checked="" type="checkbox"/> RS232			<input checked="" type="checkbox"/> RS232	<input checked="" type="checkbox"/> RS232
PC Software	Download only			Download only	Download only
Operation through computer					Yes opto- RS232
Screen memories	2	2		2	1
Stand alone operation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Oscilloscope probe included	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> x 2
Recorder mode	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Spectrum analyser mode					
Bode plot option (+ PCG10)					
X position and Y position shift	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
X 10 probe calculation option	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Adjustable trigger level				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
External trigger input					Via other channel
Pre trigger function					<input checked="" type="checkbox"/>
Zoom function for time/div					
Auto set-up FULL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Auto set-up SEMI					
Dynamic screen for markers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Signal markers ( dt / dV / 1/dt )	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Audio power calculation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Gain measurement					<input checked="" type="checkbox"/>
dBm measurement	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
dBV measurement	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
AC only true rms display	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
AC + DC true rms display	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DC measurement	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
AC+DC max / min / pk to pk	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Duty Cycle / pos neg width					
Rise / Fall time					
Period / Frequency / Phase	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> via markers	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> via markers		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> via markers	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> via markers
Auto power off option	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Battery / rechargeable battery	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Included
Low battery indication	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Battery charge circuit	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Fast charge
Holster included (BAGHPS)		<input type="checkbox"/>		<input checked="" type="checkbox"/>	
Soft bag (GIB)					<input type="checkbox"/>
Hard case (CASEHPS)		SE version		<input checked="" type="checkbox"/>	
Upgradeable firmware / software					<input checked="" type="checkbox"/>
Panel mount type			<input checked="" type="checkbox"/>		

= Yes     = Option

## TWO CHANNEL USB PC OSCILLOSCOPE

### PCSU1000

The PCSU1000 digital storage oscilloscope uses the power of your PC to visualize electrical signals. Its high sensitive display resolution, down to 0.15mV, combined with a high bandwidth and a sampling frequency of up to 1GHz are giving this unit all the power you need. The USB connection makes this unit a snap to set-up, no external power required! In the field measurements using a lap-top computer have never been this easy. This scope comes in a stylish vertical space saving design. Powerful software will fulfill all your needs, but for those who like a challenge; a DLL is supplied, which allows you to create your own application.

#### OSCILLOSCOPE:

- time base : 20ns to 100ms per division
- trigger source: CH1, CH2, EXT or free run
- trigger edge : rising or falling
- trigger level : full-screen adjustable
- step interpolation : linear or smoothed
- markers for : voltage and time/frequency
- input range : 5mV to 2V/division
- input sensitivity: 0.15mV display resolution
- auto set-up function and X10 option
- pre-trigger function
- readouts: True RMS, dBV, dBm, p to p, Duty cycle, Frequency...
- record length: 4K samples / channel
- real time sampling frequency: 1.25kHz to 50MHz
- sampling frequency for Repetitive signals: 1GHz

#### SPECTRUM ANALYSER:

- frequency range : 0 .. 1.2kHz to 25MHz
- linear or logarithmic timescale
- operating principle : FFT (Fast Fourier Transform)
- FFT resolution : 2048 lines
- FFT input channel : CH1 or CH2
- zoom function
- markers for amplitude and frequency

#### TRANSIENT RECORDER:

- timescale: 20ms/Div to 2000s/Div
- max record time : 9.4hour/screen
- automatic storage of data
- automatic recording for more than 1 year
- max. number of samples : 100/s
- min. number of samples : 1 sample/20s
- markers for time and amplitude
- record and display of screens

#### GENERAL INFORMATION:

- inputs: 2 channels, 1 external trigger input
- input impedance : 1 Mohm / 30pF
- bandwidth: DC to 60 MHz  $\pm 3$ dB
- maximum input voltage : 30V (AC + DC)
- input coupling : DC, AC and GND
- Supply from USB port (500mA)

#### MINIMUM SYSTEM REQUIREMENTS:

- IBM compatible PC
- needs Win98SE or higher
- SVGA display card (min. 800x600, 1024x768 recommended)
- mouse
- USB port 1.1 or 2.0 compatible
- CD Rom player

#### INCLUDES:

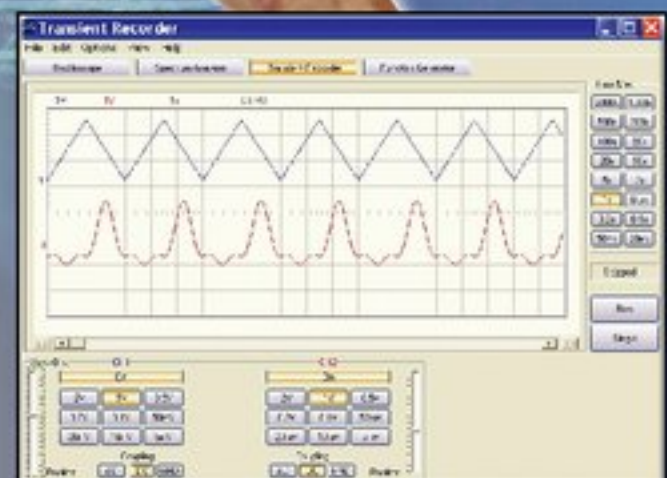
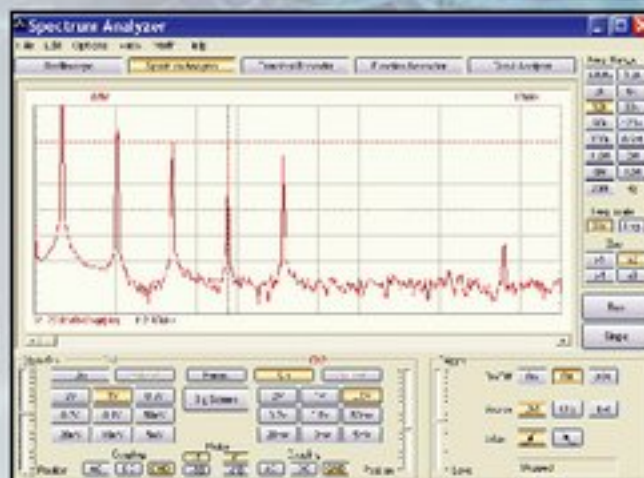
- USB PC oscilloscope
- 2 x 60MHz scope probe (PROBE60S)
- USB cable
- software on CD
- getting started manual
- translations on CD

#### OPTIONS:

- GIB soft bag

**1Gs/s**  
**2 x 60MHz**

**USB**



**new**



GIB SOFT BAG

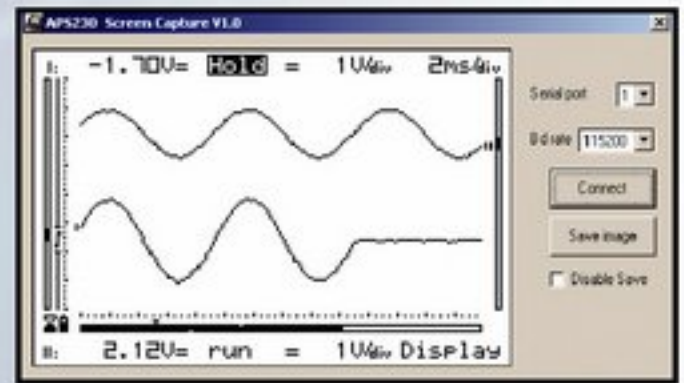


**NO  
ADAPTER  
NEEDED**



# ADVANCED PERSONAL SCOPE 240MS/S

APS230



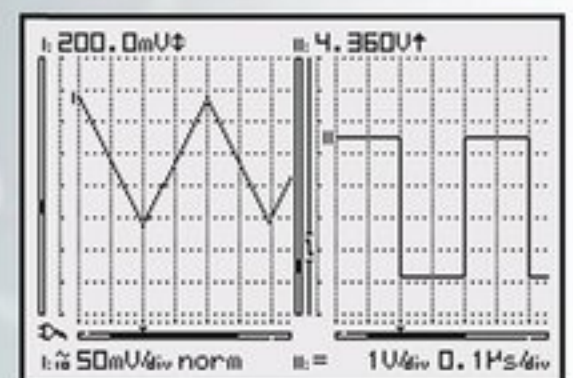
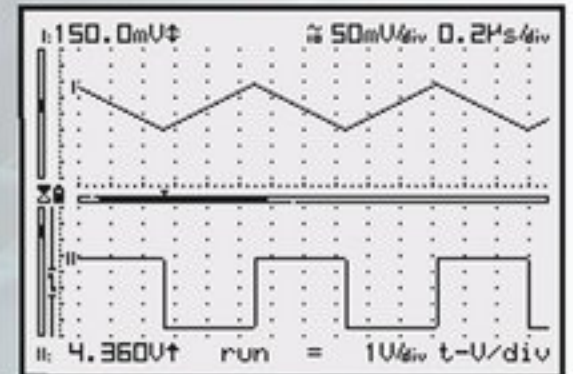
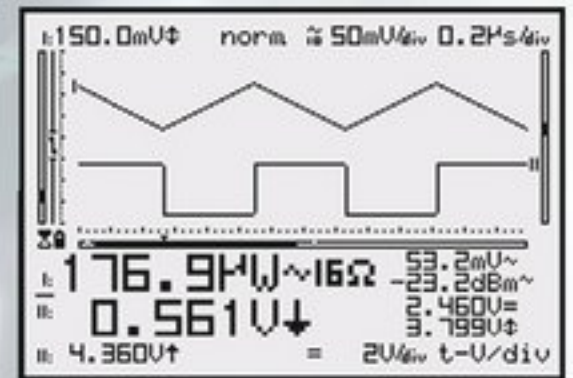
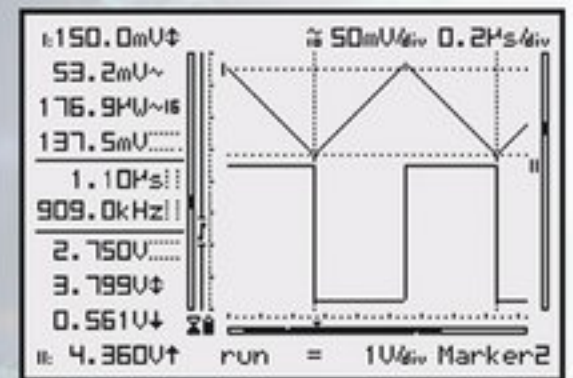
**2 x 30MHz**

2 input channels. High-contrast LCD with white backlight. Full auto set-up for volt/div and time/div. Recorder roll mode, up to 170h per screen. Trigger mode: run - normal - once - roll ... Adjustable trigger level and slope. Peak measurements: max, min. and pk to pk. Measurements: rms, dB(rel), dBV, dBm and dBG. Direct Audio power measurements. x1 and x10 probe calculation option. Several display modes. StereoScope mode for audio measurements. X and Y position shift. Battery pack included, fast charge possible.

- Input impedance: 1 Mohm / 20pF
- Bandwidth: 2 x 30MHz
- Sampling: 240MS/s per channel
- Step markers for voltage, time, ...
- Vertical resolution: 8 bit
- Sensitivity: min. 30µV
- Volts per division: 1mV to 20V/div
- Time base: from 25ns to 1 hr/div
- AC/DC input coupling selection
- RS232 communication with PC (PCUSB6 for USB connection in option)
- Dimensions: 230 x 150 x 50mm
- Weight: 850g incl. battery

**OPTIONS:**

- GIB soft bag



**INCLUDES TRAVEL ADAPTOR 110 - 230V**



## 4-CHANNEL RECORDER / LOGGER

PCS10



Record DC signals or slow-moving signals over very long periods. The measurements are automatically stored on your hard disk for further processing. Thanks to the USB connection no power supply is necessary and installation is easy and straightforward. Signals are instantly displayed on the PC screen using an analogue or DVM display.

### HARDWARE:

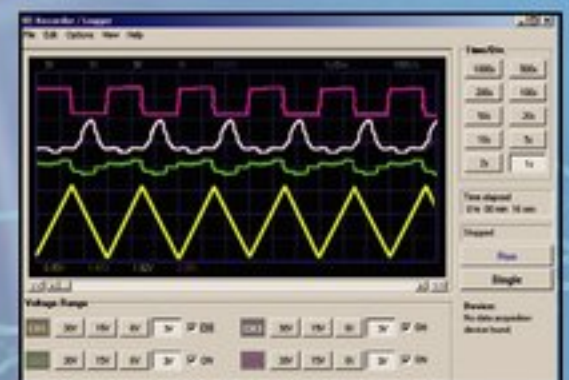
- USB connected and powered
- 4 DC-coupled input channels
- Input resistance: 1Mohm
- Maximum samples per second: 100
- 4 input ranges: 3V / 6V / 15V and 30V
- Sensitivity: 10mV
- Accuracy:  $\pm 3\%$  of full scale

### SOFTWARE:

- Analogue trace or DVM readout
- 4 channels record simultaneously
- From 1 sec to 1000 sec per division
- Storage and recall of screens (full colour) or data
- Automatic recording option for long recordings
- DLL included for your own developments.

### MINIMUM SYSTEM REQUIREMENTS:

PC, running Win98SE or higher (does not work on WinNT or Win95); free USB port ; mouse ; CD-ROM player.



## PC FUNCTION GENERATOR 0-1MHZ

PCG10A

Frequency range : from 0.01Hz to 1MHz. Crystal-based stability. Optically isolated from the PC. Low sine wave distortion. TTL-level synchronization output. Stores up to 32K of waveform points. Standard waveforms: sine, square and triangle. Predefined library waveforms included: noise, sweep, ... Includes Windows™ '95/'98/NT/2000 integrated software for the function generator and Velleman PC oscilloscopes. You can create your own waveforms with the integrated signal wave editor. Can be chained with Velleman PC oscilloscopes to the same PC printer port (LPT1, 2 or 3).

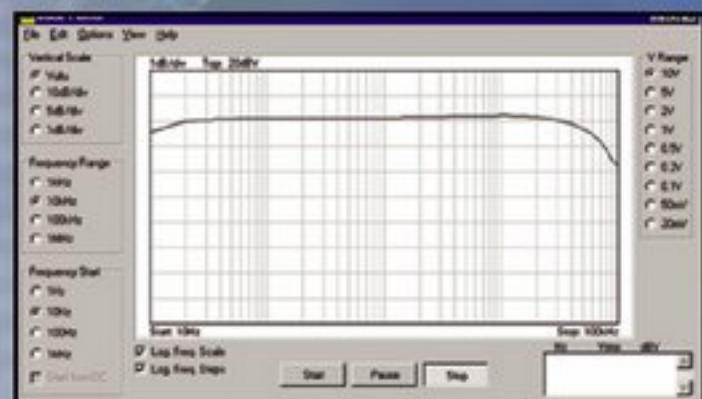
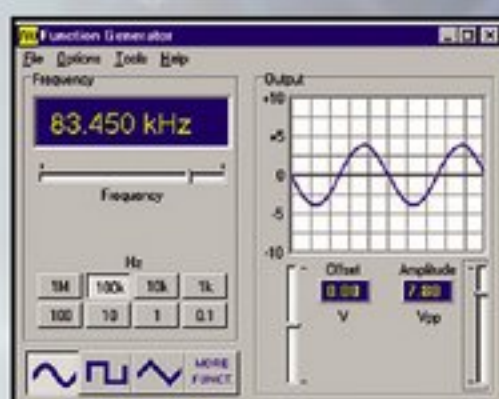
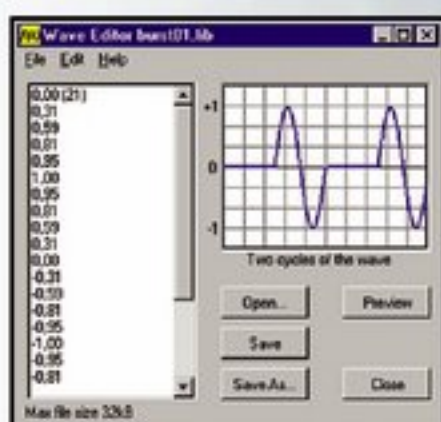
- Power supply: 12V DC, 800mA (included)
- Distance control via RS232
- Amplitude range: 100mVpp to 10Vpp @ 600ohm load
- Offset: from 0 to -5V or +5V max. (resolution 0.4% of full scale)
- Vertical resolution: 8 bits (0.4% of full scale)
- Maximum sample rate: 32Mhz
- Output impedance: 50ohm
- Dimensions: 235 x 165 x 47mm

### MINIMUM SYSTEM REQUIREMENTS:

- IBM compatible PC
- Windows 95, 98, ME (Win2000 or NT possible)
- mouse
- free printer port LPT1, LPT2 or LPT3
- CD-ROM player



**GALVANIC ISOLATED FROM COMPUTER**



## DIGITAL STORAGE SCOPE FOR PC

### PCS100A

#### PCS100A: 1 channel (12MHz) with sampling frequency up to 32MHz

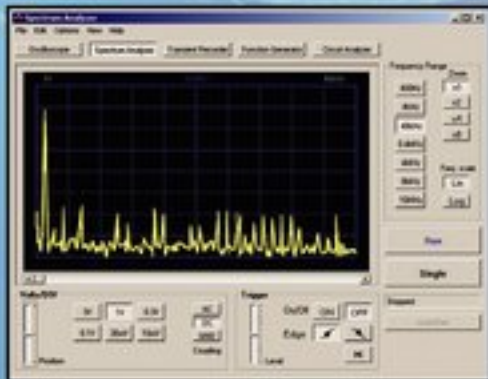
The PCS100 is a digital storage oscilloscope, using a computer and its monitor to display waveforms. Its operation is just like a normal oscilloscope. Connection is through the computer's parallel port.

- Auto setup function
- Input impedance: 1Mohm // 30pF
- Record and display of screens & data
- Supply voltage: 9Vdc / 500mA
- Dimensions: 230 x 165 x 45mm
- Options: soft carry case (GIB)
- Adapter incl.

#### PROBE INCLUDED

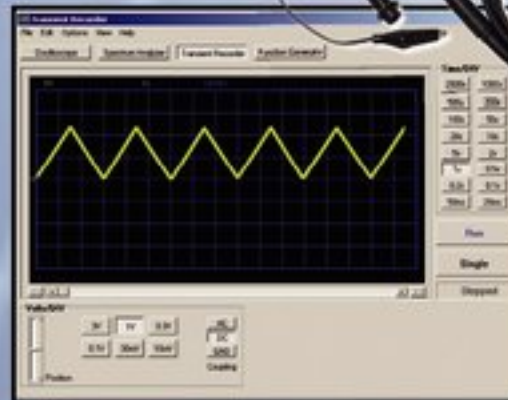


#### GALVANIC ISOLATED FROM COMPUTER



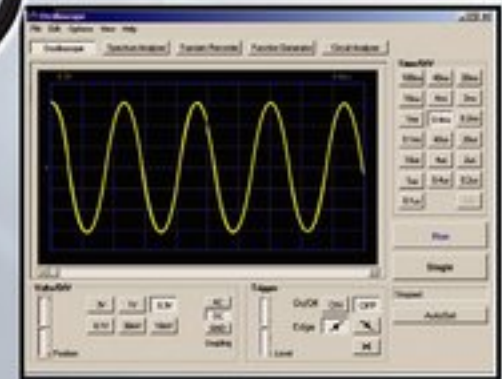
#### SPECTRUM ANALYSER:

- Frequency range: max. 16MHz
- Operating principle: FFT (Fast Fourier Transform)
- FFT resolution: 2048 lines
- Markers for amplitude and frequency



#### TRANSIENT RECORDER:

- Time scale: 20ms/div to 2000s/div
- Max. recording time: 9.4hours/screen
- Max. number of samples: 100/s
- Markers for time and amplitude
- Data format: ASCII



#### OSCILLOSCOPE:

- Timebase: 0.1µs to 100ms per division
- Trigger level: adjustable per ½ division
- Recording length: 4096 samples / channel
- Sampling frequency: real-time 32MHz

## DIGITAL STORAGE SCOPE FOR PC

### PCS500A

#### PCS500A: Two separately digitized channels with a 50MHz bandwidth and a sampling frequency of up to 1GHz.

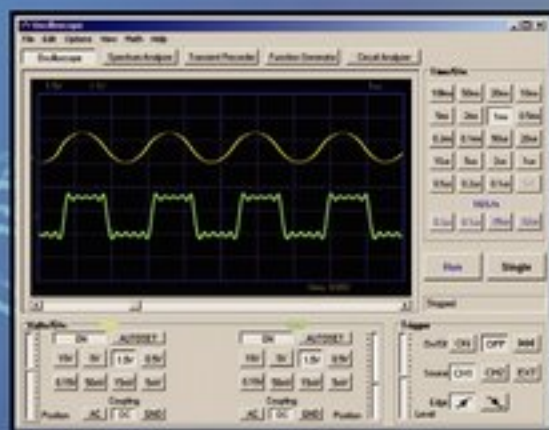
The PCS500 is a digital storage oscilloscope that uses a computer and its monitor to display waveforms. All standard oscilloscope functions are available through the supplied Windows program. The oscilloscope and transient recorder have two completely separated channels with a sampling frequency up to 1GHz.

- Auto setup function
- Input impedance: 1Mohm // 30pF
- Record and display of screens & data
- Input coupling: DC, AC and GND
- Supply voltage: 9 / 1000mA (adapter incl.)
- Dimensions: 230 x 165 x 45mm
- Options: soft carry case (GIB)



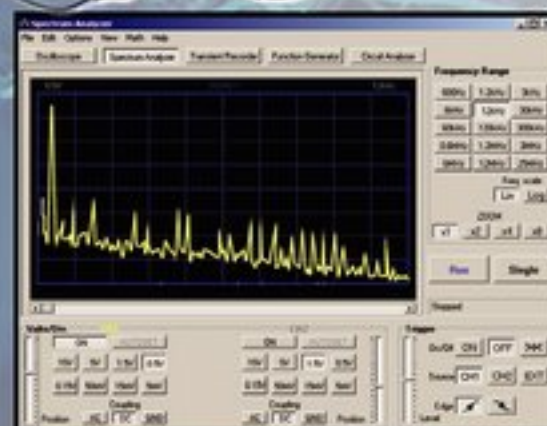
#### GALVANIC ISOLATED FROM COMPUTER

#### PROBES INCLUDED



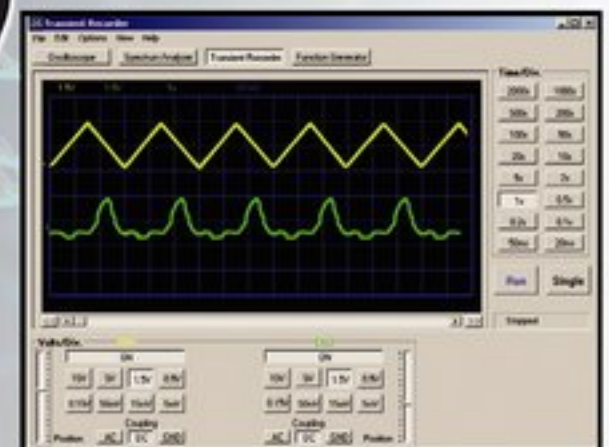
#### OSCILLOSCOPE:

- Timebase: 0.1µs to 100ms per division
- Trigger level: adjustable per ½ division
- Markers for voltage and frequency
- Input sensitivity: 5mV to 15V / division
- Auto setup-function
- True RMS readout (only AC component)
- Recording length: 4096 samples / channel
- Sampling frequency: real-time 1.25kHz to 50MHz
- repetitive: 1GHz



#### SPECTRUM ANALYSER:

- Frequency range: 0...1.2kHz to 25MHz
- Operating principle: FFT (Fast Fourier Transform)



#### TRANSIENT RECORDER:

- Time scale: 20ms/div to 2000s/div
- Max. recording time: 9.4hours/screen
- Max. number of samples: 100/s
- Recording and display of screens
- Data format: ASCII

## PERSONAL SCOPE 40MS/S

### HPS40

Our goal with the HPS40 was to develop a user-friendly, feature-packed and genuinely "hand-held" oscilloscope. A number of characteristics were on our wish list: low noise, high sensitivity, modest weight, a backlit LCD and a choice between regular batteries or rechargeable ones. Both novices and professional users will admire the fast and fully automatic setup function, allowing them to perform measurements without physically touching the unit!

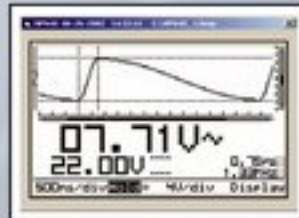
- 0.1mV sensitivity
- 5mV to 20V/div in 12 steps
- 50ns to 1hour/div time base in 34 steps
- X and Y position signal shift
- DVM readout
- audio power calculation (rms and peak) in 2, 4, 8, 16 & 32 ohm
- dBm, dBV, DC, rms ...measurements
- signal markers for Volt and Time
- frequency readout (through markers)
- recorder function (roll mode)
- signal storage (2 memories)
- **high-resolution LCD 192x112 pixels**
- record and display of screens & data

#### CONTAINS:

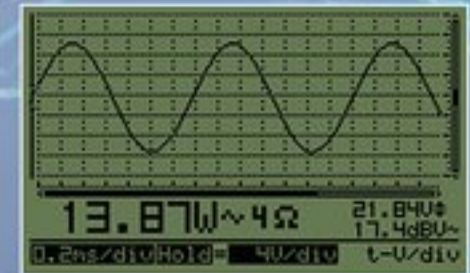
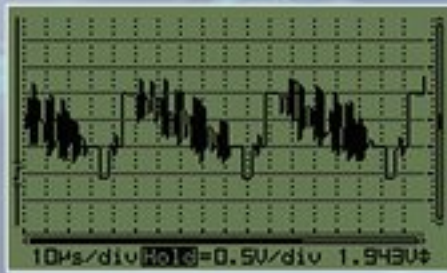
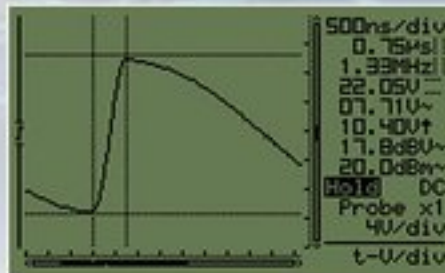
- HPS40 unit
- User manual
- Flexible carry protection holster
- Insulated safety probe
- RS232 connection lead (to DB9)
- Handy rigid carry case

#### OPTIONS:

- Adapter: PS905
- PS905USA (USA)



**UP TO 12MHz  
ANALOG  
BANDWIDTH**



## PERSONAL SCOPE 10MS/S

### HPS10SE

The Velleman Personal Scope is not a graphical multimeter but a complete portable oscilloscope at the size and the cost of a good multimeter. Its high sensitivity - down to 0.1mV - and extended scope functions make this unit ideal for hobby, service, automotive and development purposes. Because of its extreme value for money, the PersonalScope is well suited for educational use in schools and colleges.

- 10MHz sampling rate
- Up to 2MHz analogue bandwidth
- 0.1mV sensitivity
- 5mV to 20V/div in 12 steps
- 200ns to 1hour/div time base in 32 steps
- X and Y position signal shift
- audio power calculation (rms and peak)
- dBm, dBV, DC, rms ... measurements
- frequency readout (through markers)
- recorder function (roll mode)
- LCD: 128x64 pixels
- power supply: 5 x 1.5V AA battery or Nicd / NiMH (not incl.)
- includes battery charging circuit
- weight: 400g (exl. battery)

**UP TO 2MHz  
BANDWIDTH**

### HPS10



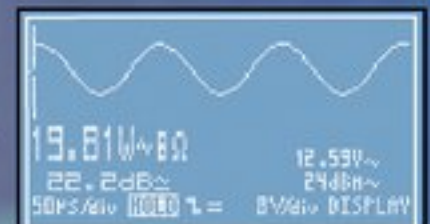
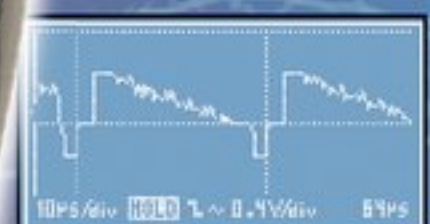
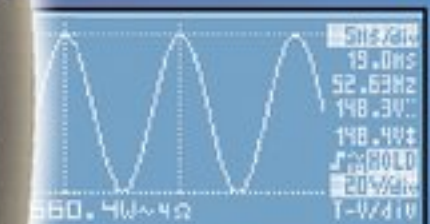
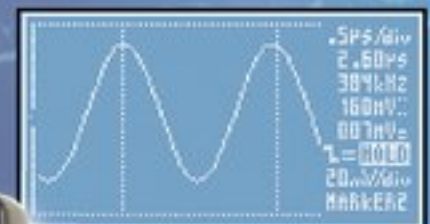
**SPECIAL  
EDITION**

Comes in a rigid  
carry case.  
Reverse backlight.



#### OPTIONS:

- Adapter 9V / 500mA: PS905
- Practical holster: BAGHPS
- Hard case: CASEHPS



## PANEL SCOPE 10MS/S

### VPS10

Panel mount oscilloscope for monitoring, system analysis, educational purposes, system demonstrations, sensor testing... Or just connect it to your car's audio system and use it as an eye-catcher! Never before has an oscilloscope had so many potential applications. A must have!

- panel mount
- high-contrast backlight LCD
- full auto set up
- recorder roll mode
- user-friendly set-up menu
- measurements: rms, dB(rel), dBV, dBm
- Direct Audio power measurements
- x1 and x10 probe calculation
- 6 display modes

- input impedance: 1Mohm / 30pF
- connection of internal or external signal
- up to 2MHz bandwidth
- sampling: 10MS/s
- LCD with white backlight and 128 x 64 pixels
- vertical resolution: 8 bit
- max. sensitivity: 0.1mV
- DVM readout
- AC or DC input coupling
- power supply: 9VDC or 6VAC / 300mA
- dimensions: 165 x 90mm (6.5" x 3.5"), depth 35mm (1.4")



**COMING IN 2006**

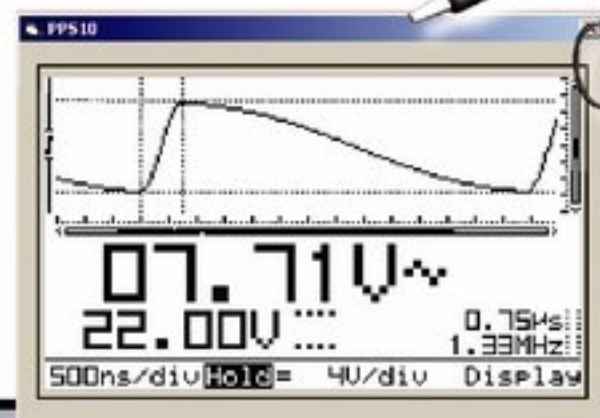
## 10MS/S PERSONAL POCKET SCOPE

### PPS10

World's most portable oscilloscope. Joystick control for true hand-held operation. Set all the functions using only your thumb. With RS232 interface for PC connectivity. Measure up to 2MHz with a sensitivity down to 0.1mV. Great for the hobbyist or the professional on the move!

- 10MHz sampling rate
- 0.1mV sensitivity
- up to 2MHz analogue bandwidth
- 5mV to 20V/div in 12 steps
- 200ns to 1hour/div time base in 32 steps
- full auto set up
- trigger mode: run, normal, once, roll, slope +/-
- X and Y position signal shift
- DVM readout with x10 option
- audio power calculation (rms and peak)
- dBm, dBV, DC, rms ... measurements
- signal markers for Volt and Time
- frequency readout (through markers)
- recorder function (roll mode)
- signal storage (2 memories)
- LCD: 128x64 pixels / high-contrast
- optional: adapter 9V / 500mA: PS905
- power supply: 5 x 1.5V AAA battery or Nicd / NiMH (not incl.)
- includes battery charging circuit

**JOYSTICK  
OPERATION**



# velleman<sup>®</sup>-kit HIGH-Q

## EVERYBODY CAN DO IT!

Creating your own world using Velleman Kits is fun, educational and you can be proud of the result.



## PACKAGING

The quality of our kits is reflected in the attractive and informative packaging. The various parts are packed in distinct groups, providing the user with a clear overview of the contents. Rigid quality control prior to, during and after the production process guarantee the contents of each kit.



## SOLDERING STARTER KIT

### K/START

Ideal for beginners.

Contains:

- soldering iron (230Vac): VTSC30
- solder: SOLDERDISPLF
- soldering iron holder: STANDLC
- pair of wire-cutters: VT057
- flashing LEDs: MK102
- LED light organ: MK103



## SOLDERING STARTER KIT

### K/START2

Ideal for beginners. Contains:

- 3 1/2 digital multimeter: DVM810
- miniature long nose pliers: VT056
- electronic dice: MK109
- pocket vu-meter: MK115
- solder sucker pump: VTD4
- screwdriver set: VTSET6

## RECOMMENDED TOOLS - WWW.VELLEMAN.BE

### VTSC25N



25W

### SOLD100G



100g

### SOLDERDISP



17g

### SOLD100GLF



LEAD-FREE  
Obligatory as  
of 01/06/06  
100g

### VTSS4



48W

### VT100



## Select your most suitable Velleman dimmer












KIT NR :	K8026	K8028	K8029	K8037	K8038	K8039	K8064	K8068	VM131
<b>MODULE VERSION</b>	NO	VM101	NO	NO	NO	NO	NO	NO	YES
<b>MAXIMUM POWER @ 230V</b>	750W	600W	400W	350W	1KW !	1KW !	750W	300W	300W
<b>MAXIMUM POWER @ 110V</b>	375W	300W	200W	175W	500W	500W	375W	150W	150W
<b>INCANDESCENT LIGHTBULBS EX. E14,E27,... (*)</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>HIGH VOLTAGE HALOGEN EX. E27,GU10 @ 110/240V</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>LOW VOLTAGE HALOGEN WIREWOUND TRANSFO</b>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
<b>LOW VOLTAGE HALOGEN ELECTRONIC TRANSFO</b>								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>NEEDS K8006 BASE SYSTEM</b>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	
<b>STAND ALONE OPERATION</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
<b>POTENTIOMETER CONTROLLED</b>	<input checked="" type="checkbox"/>								
<b>PUSHBUTTON CONTROLLED</b>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>CONTROLABLE BY EXTERNAL UNIT</b>		SWITCH				DMX	0...10 VDC		
<b>SLOW ON/OFF FUNCTION</b>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
<b>SOFT START FUNCTION</b>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>STATUS CONTROL LED(S)</b>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>LOAD FAILURE DETECTION</b>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
<b>REPLACEMENT FROM PREV. KIT</b>	K5001	K2657		K8007	K8024		K8003		

\* TL / ENERGY SAVING LAMPS ARE NOT YET SUPPORTED



## Select your most suitable Velleman RF remote control (kits & modules)

PRODUCT	CHANNELS	COMPATIBLE WITH	# OF DIFFERENT POSSIBLE CODES	CODE SET METHOD	ON/OFF	PULSE	TIMER(S)	POWER SUPPLY
<p><i>OBSOLETE</i></p>  <p><b>K6706B/G</b></p>	2	<b>K6707</b> <b>K6727</b> <b>K3511</b> <b>K8009</b> <b>K8022</b>	8748	jumper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<b>12V battery</b> eg <b>V23GA</b> <b>GP23GA</b>
 <p><b>VM118 set</b></p>	8	<b>K8056</b> + <b>RX433</b> <b>VM118R</b>	8	softw.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<b>12VAC</b> + <b>3xAAA</b>
 <p><b>K8059 / VM108</b></p>	2	<b>K8057</b> <b>VM109</b> <b>K6707*</b> <b>K6727*</b> <b>K3511</b> <b>K8009</b> <b>K8022</b>	> 1000000000	softw.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>12V battery</b> eg <b>V23GA</b> <b>GP23GA</b>
 <p><b>K8058 / VM118R</b></p>	8	<b>K8056</b> <b>VM118</b>	8	softw.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<b>4.5VDC</b> <b>3xAAA battery</b>
 <p><b>K8057</b></p>	2	<b>K8059</b> <b>VM108</b>	> 1000000000	softw.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>9-12V DC/AC</b>
 <p><b>VM109 set</b></p>	2	<b>K8059</b> <b>VM108</b> <b>K8057</b>	> 1000000000	softw.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>TX :</b> <b>12V battery</b> eg <b>V23GA</b> <b>GP23GA</b> <b>RX: 9-12V DC/AC</b>
<p><i>OBSOLETE</i></p>  <p><b>K6707</b></p>	1	<b>K6706B</b> <b>K6706G</b> <b>K8059*</b> <b>VM108*</b>	8748	jumper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<b>2x9VAC</b> <b>12-16VDC</b>
<p><i>OBSOLETE</i></p>  <p><b>K6727</b></p>	2	<b>K6706B</b> <b>K6706G</b> <b>K8059*</b> <b>VM108*</b>	8748	jumper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<b>2x9VAC</b> <b>12-16VDC</b>
 <p><b>K8056 + RX433</b></p>	8	<b>K8058</b> <b>VM118R</b>	8	softw.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<b>12VAC</b>

\*LIMITED COMPATIBILITY

MODIFICATIONS RESERVED

## 120 PCS DIODE SET

K/DIODE1

**new**

Set of 120 general purpose diodes for service, hobby, education, ...

Type :	VR	IF (DC)	Qty
DIODES			
1N4148	75V	0,2A	50
1N4007	1000V	1A	50
1N5408	1000V	3A	14
6A6	600V	6A	4
BRIDGE RECTIFIER			
T10B2 (W01G)	100V	1,5A	2



## SET OF 80 ASSORTED LEDS

K/LED1

- quantity: 80 pieces
- contents:
  - 15 x: 3mm green, 4.0mcd
  - 20 x: 3mm red, 1.0mcd
  - 15 x: 5mm green, 6.0mcd
  - 20 x: 5mm red, 2.0mcd
  - 10 x: 5mm yellow, 3.9mcd



## CERAMIC CAPACITOR SET

K/CAP1

- quantity: 224 pieces
- number of values: 14 (from 10pF to 220nF)
- contents:
  - 21 x: 10pF, 100pF, 1nF, 10nF, 100nF
  - 14 x: 22pF, 47pF, 220pF, 470pF, 2.2nF, 4.7nF, 22nF, 47nF
  - 7 x: 220nF



## SET OF 480 RESISTORS (E3-SERIES)

K/RES-E3

High-quality carbon film resistors with a connecting wire that is easily soldered. Applications: TV's, audio and video equipment, telephone receivers and communication systems, instrumentation, home appliances, ...

- quantity: 480 pieces (30 pcs per value)
- serie: E3
- number of values: 16 (from 10E to 1M)
- power rating: 1/4W
- operating temperature range: -55°C to +155°C
- tolerance: 5%
- max. operating voltage: 250V



## ELECTROLYTIC CAPACITOR SET

K/CAP2

- quantity: 120 pieces
- number of values: 10 (from 1μF to 1000μF)
- contents:
  - 15 x: 1μF/50V, 2.2μF/50V, 4.7μF/50V, 10μF/50V, 22μF/50V, 47μF/25V, 100μF/25V
  - 5 x: 220μF/25V, 470μF/25V, 1000μF/25V



## SET OF 610 RESISTORS (E12-SERIES)

K/RES-E12

High-quality carbon film resistors with a connecting wire that is easily soldered. Applications: TV's, audio and video equipment, telephone receivers and communication systems, instrumentation, home appliances, ...

- quantity: 610 pieces (10 pcs per value)
- serie: E12
- number of values: 61 (from 10E to 1M)
- power rating: 1/4W
- operating temperature range: -55°C to +155°C
- tolerance: 5%
- max. operating voltage: 250V



## FM OSCILLATOR

■ ■ ■ ■ ■ K1771

Mini FM modulator (100-108MHz). Integrated pre-amplifier for connection of all microphone types. Family broadcasts, baby phone, security. Reception possible with all portable FM radios or tuners.

- power supply: 9 - 12VDC
- input sensitivity preamplifier: 5mV
- PCB dimensions: 45 x 70mm (1.8" x 2.8")
- recommended housing: G410 or WCAH2853



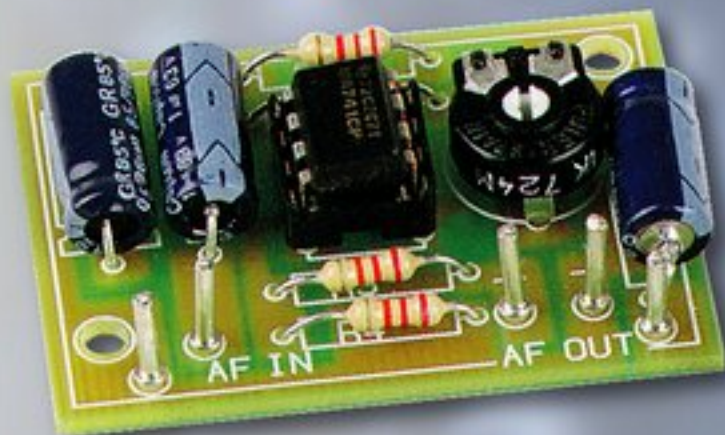
**not for EU**

## UNIVERSAL MONO PRE-AMPLIFIER

■ ■ ■ ■ ■ K1803

This kit was developed as pre-module for a number of audio applications where the input signal is too weak. Applications as a microphone pre-amplifier or for level correction.

- power supply: 10-30VDC / 10mA
- output impedance: 1Kohm
- adjustable output level: max. 40dB
- frequency range: 20Hz to 20kHz  $\pm$  3dB
- max. input signal: 40mV
- PCB dimensions: 30 x 44mm (1.2" x 1.7")
- options for power supply: 1120007M + K1823



## 1A POWER SUPPLY KIT

■ ■ ■ ■ ■ K1823

This small power supply provides a regulated voltage, adjustable between 1.5 and 35 volts at 1 Amp. With the LM317 regulator remarkably better ripple and regulation characteristics are given than with conventional regulators. Current limiter and thermal overload protection are included in the IC. Supplied without heatsink.

- output current: 1.5A max.
- max. dissipation: 15W (cooled)
- max. input voltage: 40VDC
- PCB dimensions: 52 x 52mm (2.1" x 2.1")
- recommended housing: 80105
- recommended transformer: 2120250MST

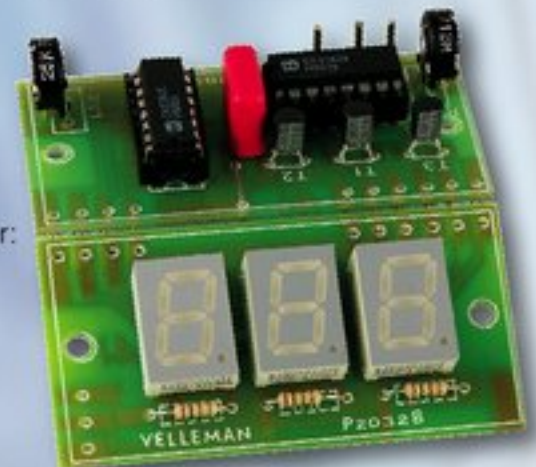


## DIGITAL PANEL METER

■ ■ ■ ■ ■ K2032

This panel meter is an almost ideal replacement for the traditional moving-coil type instrument. Its accuracy is many times better. The high precision and stability offered by this meter are illustrated in the technical specifications. As it is very compact, this unit can be built into all kinds of housings or even into existing equipment.

- supply voltage: 5VDC / 250mA
- display: +999mV and -99mV full-scale
- overload indication: positive and negative
- resolution: 1mV
- input impedance: 100Mohm
- PCB dimensions: 33 x 65mm (1.3" x 2.6")
- recommended transformer: 1060018M

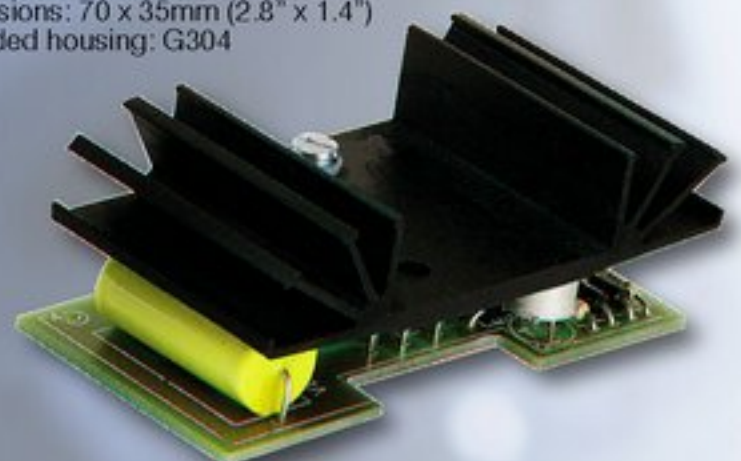


## ELECTRONIC TRANSISTOR IGNITION FOR CARS

■ ■ ■ ■ ■ K2543

Gives your car the feel of an expensive luxury car. Better starting and smoother running, particularly at very high and very low RPM. Lower fuel consumption, less pollution, lower servicing costs. Drive economically, drive electronically. Only for petrol/gasoline engines. Only for cars with negative ground.

- max. current: 4A
- connection speed: up to 500kHz
- PCB dimensions: 70 x 35mm (2.8" x 1.4")
- recommended housing: G304

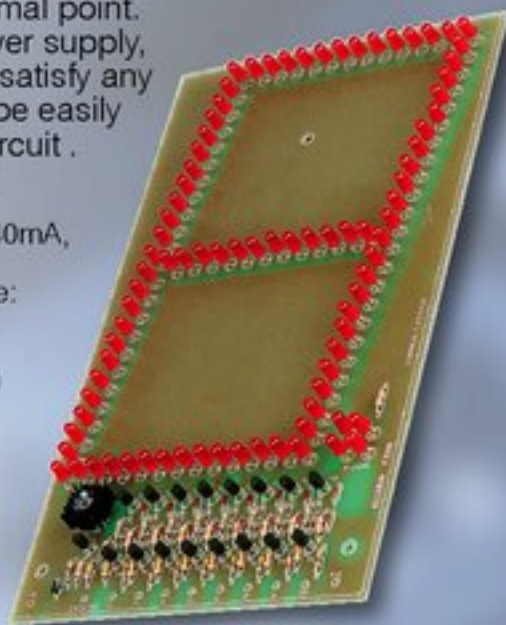


## 20CM LED DISPLAY

**K2567**

This kit contains a 7-segment display consisting of 12 LEDs per segment and 4 LEDs for the decimal point. Using an additional power supply, which does not have to satisfy any strict standards, it may be easily connected to existing circuit.

- power supply: 22-26VDC non-regulated
- segment current: static : 40mA, multiplex : 75mA
- total current in static mode: max. 400mA
- PCB dimensions: 150 x 252mm (5.9" x 9.9")

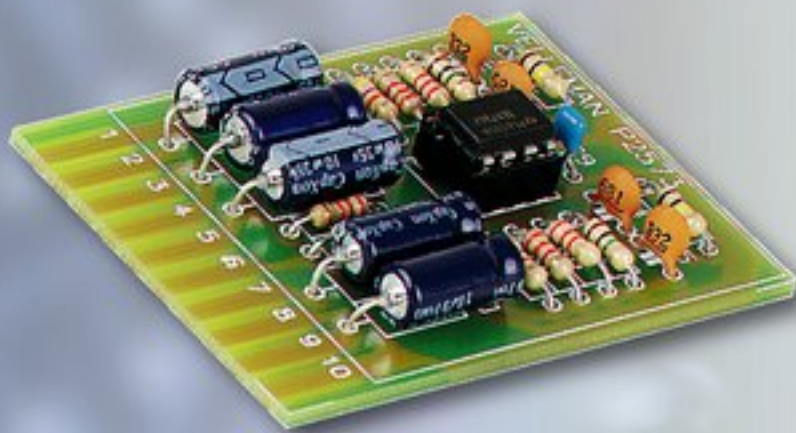


## STEREO PRE-AMPLIFIER FOR MD PICK-UPS

**K2573**

RIAA stereo pre-amplifier for MD pick-ups. Low noise.

- supply voltage: 10 -30VDC / 5mA regulated
- gain (1kHz): 35dB
- input signal: 5 - 10mV
- input impedance: 47Kohm
- PCB dimensions: 44 x 65mm (1.7" x 2.6")
- recommended transformer: 1150007M + K1823

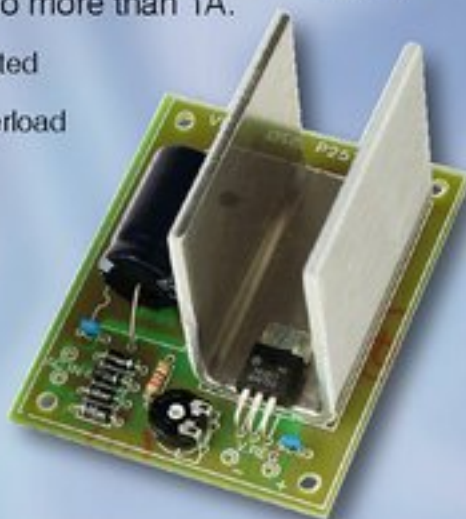


## UNIVERSAL POWER SUPPLY 5-14VDC / 1A

**K2570**

Suits all Velleman kits requiring a regulated power supply between 5 and 12VDC, and no more than 1A.

- input voltage: 7-16VDC / 1A
- output voltage: 5-14VDC, regulated
- output current: max. 1A
- power limitation and thermal overload protection
- max. dissipation: 7W
- PCB dimensions: 77 x 61mm (3.0" x 2.4")
- recommended housing: D40 or D40B
- recommended transformer: 2070250MST



## UNIVERSAL START/STOP TIMER

**K2579**

Miniature timer for all applications requiring a delay of up to 60 minutes. The control range may be adjusted.

- power supply: 12VDC / 55mA
- relay: 3A / 220V switchable
- time interval (without modifications): adjustable from 0 to 15 minutes
- PCB dimensions: 38 x 69mm (1.5" x 2.7")
- recommended housing: WCAH2853
- recommended transformer: 1120012M
- recommended adapter: PS1203

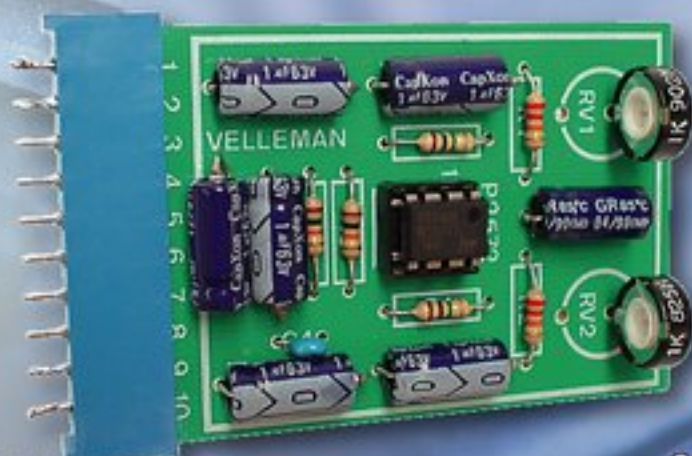


## UNIVERSAL STEREO PRE-AMPLIFIER

**K2572**

Universal low-noise stereo pre-amplifier.

- frequency range: 40Hz - 30kHz (-3dB)
- max. input voltage: 50mVrms
- adjustable gain: 40dB max.
- output impedance: 1Kohm
- power supply: 10-30VDC / 5mA
- PCB dimensions: 44 x 65mm (1.7" x 2.6")
- recommended transformer: 1150007M + K1823



## WINDSHIELD WIPER ROBOT OR INTERVAL TIMER

**K2599**

Up to 3 different time intervals (2 - 10 - 15 seconds) can be selected for the windshield wipers of your car. It can also be used for automatic slide projection.

- relays on PCB: 2 inverters
- power supply: 12 - 15VDC
- PCB dimensions: 82 x 56mm (3.2" x 2.2")
- recommended housing: WCAH2853
- recommended transformer: 1120012M 2070250MST



## STROBOSCOPE

■ ■ ■ □ □ □ □ **K2601**

Flashing light effects for discos. Make your own snapshots and "lightning" light effects. Flash frequency adjustable from 2 to 20Hz.

- power supply: 220V - 240V AC
- PCB dimensions: 87 x 65mm (3.4" x 2.6")
- recommended housing: WCAH2853

**230VAC**



## POLICE SIREN

■ □ □ □ □ □ **K2604**

Enter the world of amazing electronic sounds and noises. Create or imitate sirens of all kinds by adjusting 3 trimmers. Powerful sound with a 2W amplifier on the PCB.

- power supply: 8 - 14VDC / 1A
- dimensions: 79 x 57mm (3.1" x 2.2")
- recommended housing: WCAH2851
- recommended transformer: 1120120M

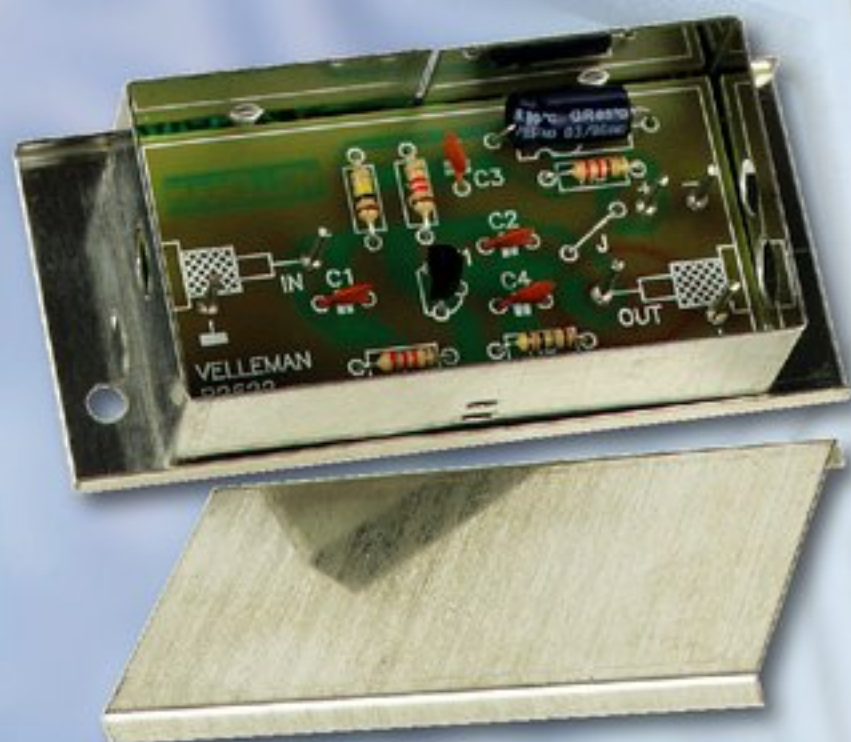


## AM/FM ANTENNA AMPLIFIER

■ □ □ □ □ □ **K2622**

This amplifier provides 22dB gain wherever you need it. DC power supply directly or via the coax cable. Metal housing included.

- gain: 22dB
- power supply: 12V to 15V / 3mA
- input- and output impedance: 50 - 75ohm
- frequency range: 10MHz to 150MHz
- dimensions: 86 x 36 x 24mm (3.4" x 1.4" x 0.9")
- recommended transformer: 1120007M



## DIGITAL TACHOMETER

■ ■ ■ ■ □ □ **K2625**

For cars or motorcycles with a petrol engine. May be used as a general purpose revolution counter.

- range: 100 - 9900 revolutions/minute
- 2 digit display
- easy calibration
- power supply: 10 - 15VDC / 200mA
- PCB dimensions: 80 x 45mm (3.2" x 1.8") + 80 x 60mm (3.2" x 2.4")
- front panel dimensions: 70 x 90mm (2.8" x 3.5")
- recommended transformer: 1120025M



## RELAY CARD

■ ■ ■ □ □ □ **K2633**

Connecting a number of relays to the outputs of an electronic circuit may seem very simple, but in reality it might possibly create some problems regarding the cabling. This kit provides an attractive and compact alternative. Moreover, it can be assembled and connected very rapidly.

- 4 x 3A relay outputs
- power supply: 9VDC / 300mA
- pcb dimensions: 76 x 69mm (3.0" x 2.7")



## QUAD TRIAC SWITCH CARD

■■■■■■■■■ K2634

Relays are usually used to switch AC voltages by means of an electronic control because of their simplicity. However, when switching occurs too frequently or too quickly the life time of the contact points is shortened considerably. This can be solved perfectly by replacing the relays with a triac. Using optocouplers, the entire interface network remains electrically isolated from the voltage that has to be switched.

- 4 triac outputs: 1.5A (uncooled, 4A cooled)
- power supply: 9VDC, 200mA
- PCB dimensions: 78 x 90mm (3.1" x 3.5")
- recommended adapter: PS905

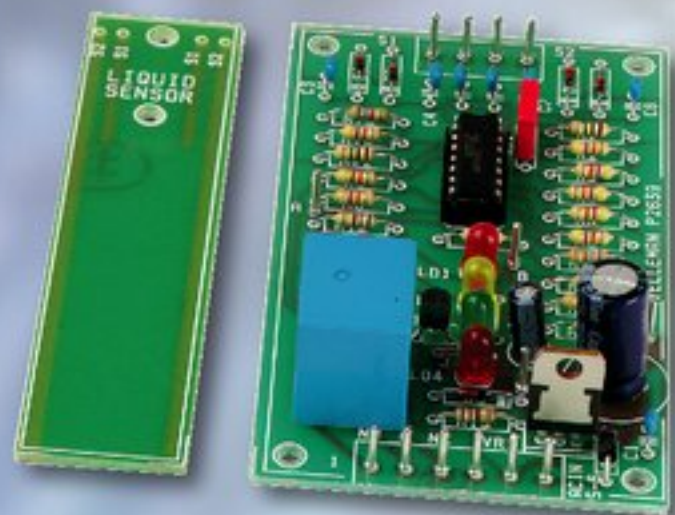


## LIQUID LEVEL CONTROLLER

■■■■■■■■■ K2639

You forget to turn off the tap, the washing machine leaks, the water level in your aquarium drops, the water tank is empty or suddenly overflows, there's water in your cellar, etc. These things happen and when they do, they often cause a lot of trouble and do a lot of damage. Prevention is still better than cure and that's where this kit comes in. This multifunctional device is easy to use in a variety of applications : 1) LED control of set fluid level : LOW, MIDDLE, HIGH ; 2) Controller : the relay automatically switches a pump and/or valve to keep the fluid level between the LOW and HIGH marks ; 3) Alarm : if the sensor detects a level which is too high or too low (selectable), the relay will operate a bell or another alarm device.

- power supply: 12-14VAC or 16-18VDC / 100mA
- relay output: 240V / 3A max.
- dimensions:
  - controller PCB: 104 x 60mm (4.1" x 2.4")
  - sensor PCB: 104 x 25mm (4.1" x 1.0")
- recommended transformer: 1120038M
- recommended adapter: PS1203



## SPEED CONTROLLER

■■■■■■■■■ K2636

Designed to control AC motors with carbon brushes (drilling machine, vacuum cleaner, saw, ...). High torque, even at low r.p.m. May also be used for low voltage loads (24V). Supply and load circuit electrically isolated from one another.

- voltage supply: 110-240V
- load voltage: 24-240VAC / 5.5A max.
- adjustable minimum r.p.m.
- low interference level
- range: 5-95%
- PCB dimensions: 130 x 75mm (5.1" x 3.0")
- recommended housing: please visit the enclosures section on our website

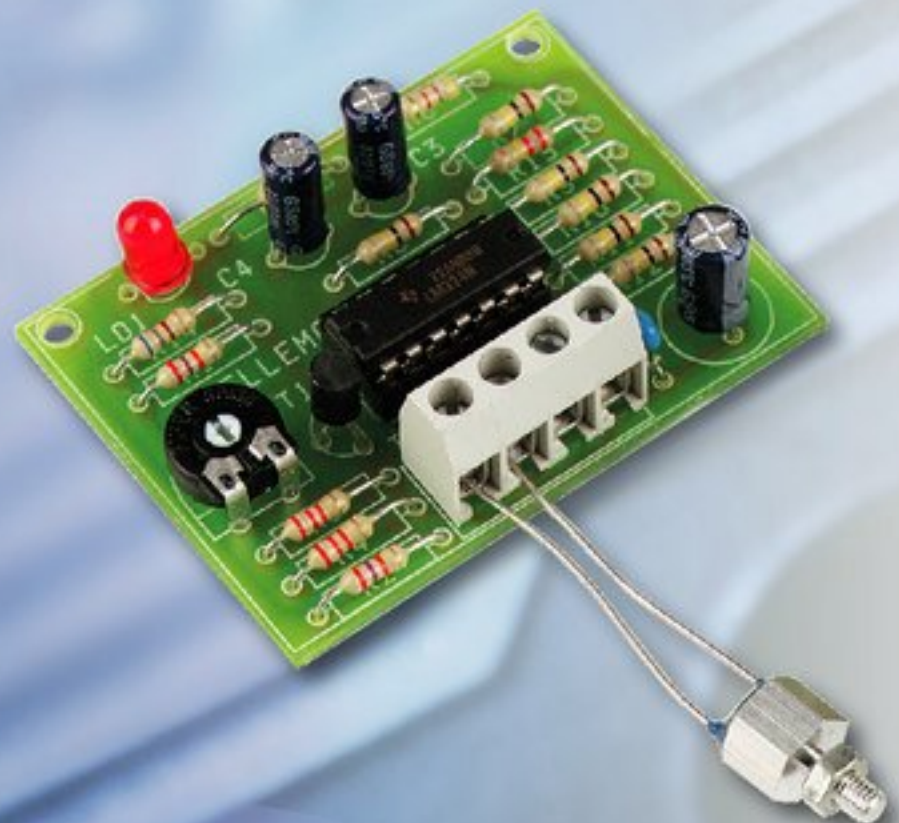


## FROST INDICATOR

■■■■■■■■■ K2644

Drive more safely in freezing weather. This kit uses a flashing LED to indicate a road temperature close to freezing point ; below that point the LED is on continuously. A reliable temperature sensor with mounting stud is included.

- power supply: 10 - 15VDC / 25mA
- PCB dimensions: 56 x 42mm (2.2" x 1.7")
- recommended housing: G404 or WCAH2855



## GEIGER-MULLER COUNTER

■■■■□□□□ K2645

This kit provides an acoustic measurement of radiation levels. The sensitivity is at its highest for gamma rays and high energy beta rays. The assembly is compact and may be mounted into a small box, together with the 9V-battery.

- power supply: 9V battery (not incl.)
- life of 9V battery: approx 2 months at continuous use and normal radiation levels
- dimensions: 99 x 54 x 25mm (3.9" x 2.1" x 1.0")
- recommended housing: G416

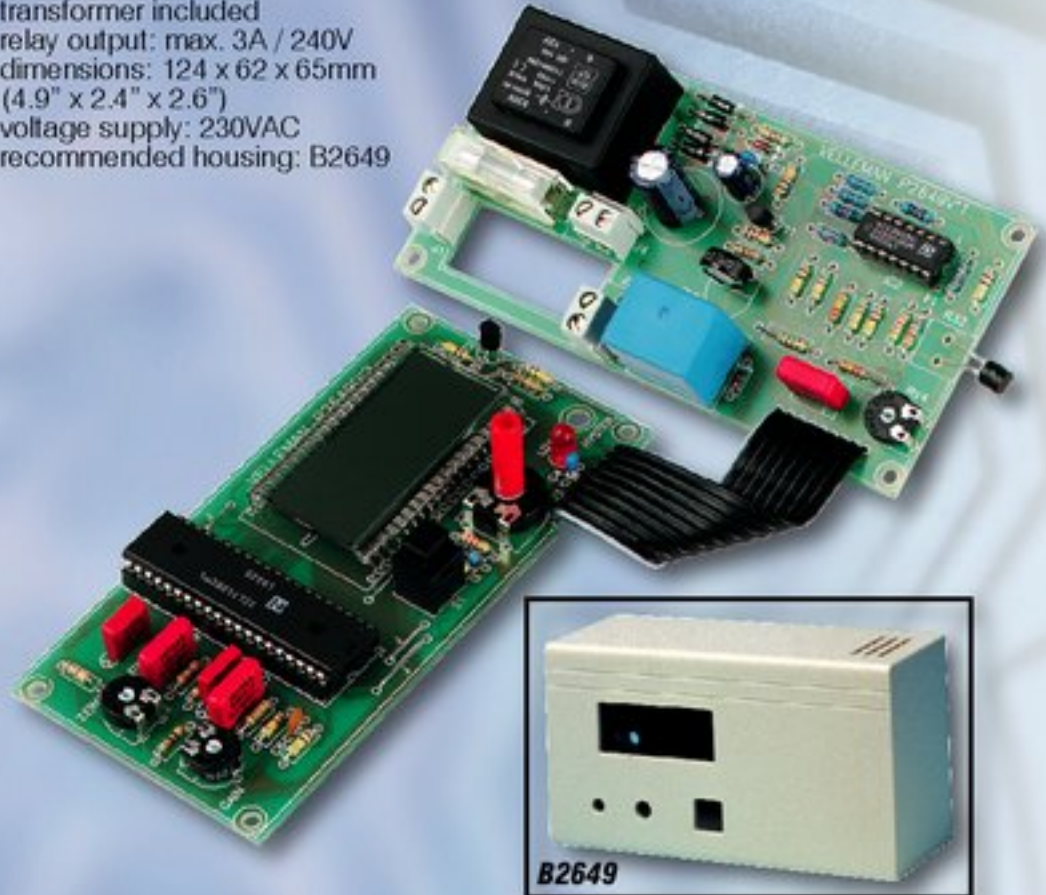


## THERMOSTAT WITH LCD DISPLAY

■■■■■■■■□ K2649

Wide range: -50°C to +150°C (-60°F to +300°F). Adjustable hysteresis: 0.2 to 10° (0.5°F to 20°F). Can be calibrated in degrees Celsius or in degrees Fahrenheit. Resolution: 0.1° or 1°. Connection for economy switch, e.g. to lower the temperature by a few degrees (also possible through a timer).

- transformer included
- relay output: max. 3A / 240V
- dimensions: 124 x 62 x 65mm (4.9" x 2.4" x 2.6")
- voltage supply: 230VAC
- recommended housing: B2649



## LCD PANEL METER

■■■■□□□□ K2651

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 no longer 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.

- range adjustable: -200mV to +200mV or -2V to +2V
- 3 1/2 digit LCD display
- may be used as a thermometer: -50 to +150°C (KTY10 sensor not included)
- voltage supply: 8 - 15VDC or 9V battery
- PCB dimensions: 50 x 72mm (2.0" x 2.8")
- recommended transformer: 1120007M
- recommended adapter: PS905



## ELECTRONIC WATCHDOG

■■■■□□□□ K2655

A circuit that produces a natural sounding barking dog with a sensitive "ear" to everything that comes near it. It is a faithful watchdog, which never sleeps and never has to be taken out for a walk.

- power supply: 2 x 8VAC or 9 - 12VDC / 500mA
- choice of two different "dog sounds"
- reacts to surrounding noise with adjustable sensitivity
- speaker output: 2W at 4ohm
- PCB dimensions: 142 x 75mm (5.6" x 3.0")
- recommended housing: WCAH2851
- recommended transformer: 2090120M
- recommended adapter: PS1205



## UNIVERSAL CRYSTAL TIMEBASE

■ ■ ■ ■ ■ K2656

In many clocks and circuits mains frequency is used as the time base, because of its high accuracy. If these devices are to be supplied by batteries (e.g. in the event of power failure) another time base should be provided to prevent the clock from stopping. This kit provides the standard 50Hz mains frequency, 100Hz (for devices operating with hundreds of seconds) or 400Hz signals (selectable).

- output frequency: 50, 100 or 400Hz
- adaptable for 1Hz
- power supply: 5 - 25VDC / 5mA
- PCB dimensions: 50 x 45mm (2.0" x 1.8")
- recommended transformer: 1120007M



## DUAL ELECTRONIC DICE

■ ■ ■ ■ ■ K3400

Board games are an excellent source of pleasant and healthy entertainment. However, the dice can be a constant source of irritation: they fall off the table, they're not cheat-proof, they're picked up before everyone has seen the result, etc. There can be no doubt whatsoever as to the result displayed on this electronic dice module and cheating is out of the question. 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.

- power supply: 8 to 12VDC or 6VAC / 60mA
- PCB dimensions: 76 x 70mm (3.0" x 2.8")
- recommended housing: BA4
- recommended transformer: 1060012M
- recommended adapter: PS905



## DUAL INPUT AMPLIFIER MODULE

■ ■ ■ ■ ■ K2661

Two input amplifiers that can be mounted in 4 different ways: mono microphone input, symmetric or asymmetric / mono line input, symmetric or asymmetric / stereo line input / stereo phono input. Each amplifier has one gain control ( $\pm 25$ dB).

- two stereo channels
- gain adjustment: 25dB
- signal to noise ratio: > 80dB
- total harmonic distortion: < 0.05%
- frequency response: 20Hz to 20kHz (0.5dB)
- RIAA correction:  $\pm 1$ dB
- supply voltage: + and -15/18V (regulated)
- PCB dimensions: 63 x 98mm (2.5" x 3.9")



## MULTIFUNCTION CAR COURTESY LIGHT

■ ■ ■ ■ ■ K3500

If, like most of us, you do not have infrared eyesight, then at times you have probably found yourself fumbling for the ignition switch or seat belt in the dark. For people like you we have developed this solution. With pushbutton and battery protection.

- switch-off delay: adjustable for 0 to 60 seconds
- power supply: 12-15Vdc
- power consumption: 13mA
- PCB dimensions: 45 x 70mm (1.8" x 2.8")
- recommended housing: WCAH2855



## DUAL STEREO VU METER

■ ■ ■ ■ ■ K2668

This module contains 2 stereo VU meters with 2 x 5 LED indicators.

- indication: -13, -8, -3, 0, +3dB
- sensitivity: 0dB = 0.775Vrms (easily adjustable)
- supply voltage: 14 - 18VDC / 62mA
- PCB dimensions: 28 x 98mm (1.1" x 3.9")





## 12V OR 24VDC TO 220VAC CONVERTER

■■■■■□ K3501

For use in cars, trucks, boats, caravans or other places where only 12 or 24 volt battery power is available. For supplying audio equipment, video recorders, television, computer, electric shaver, etc.

- 300W output power at 24VDC input
- 160W output power at 12VDC input
- 50Hz crystal oscillator
- FET power transistors (heat sink included)
- output voltage monitor
- battery voltage monitor
- quiescent current: 0.5A
- not suitable for motors
- transformer available separately (for 12 or 24V)
- PCB dimensions: 82 x 110mm (3.2" x 4.3")
- recommended transformer: 1609 (12V)



## CAR BOOSTER 2 X 100W

■■■■■□ K3503

At last a kit that enables you to build an affordable high power amplifier for your car. Thanks to its universal connections, this power amplifier may be connected to any equipment. For trucks, it can be adapted to be supplied from a 24V source. Complete with heat sink and housing.

- output power: 2 x 100W max.
- power supply: 14.3VDC (10 - 16VDC allowed) / adjustable to 24VDC (20 - 30VDC allowed)
- double switched mode power supply (PWM) with MOSFET transistors
- CD/LINE/LS input, selectable
- frequency response: 10Hz - 100kHz (CD input)
- input impedance: 47K or 135ohm
- supplied with housing
- dimensions: 250 x 190 x 50mm (9.8" x 7.5" x 2.0")



## PARKING RADAR

■■■■■□□ K3502

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. Consequently, a sensor mounted at the back of the car can give an indication of the distance between your car and the car parked behind you or other obstacles (only at the same height as the sensor). When the preset minimum distance is crossed, an audible signal is generated.

- detection range: 5cm - 1.5m (adjustable)
- detection angle: 5°
- supply voltage: 10 - 15VDC / 16mA
- PCB dimensions:
  - sensor: 28 x 95mm (1.1" x 3.7")
  - base: 48 x 125mm (1.9" x 4.9")
- recommended housing: G416 or G407



## CAR ALARM

■■□□□□ K3504

The alarm detects 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 in standby mode after a set time (after you have left the car). Pre-alarm (built-in buzzer) to indicate that the alarm is activated, so that you will not forget to switch it off. The alarm is easy to switch on and off, either automatically or by means of the ignition switch or a remote control unit, such as the K8059 / K8057 or MK161 / MK162.

- 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 (2.4" x 3.9")
- recommended housing: WCAH2853



## CAR LIGHT WARNING ALARM

### ■■■■■ K3505

This head light indicator may be set for one or two functions. To indicate that the headlights (or the sidelights) should be switched off after switching off the ignition contact (battery protection). Or to indicate that the head lights should be on once ignition contact is switched on (obligatory in some countries).

- continuously repeated alarm tone for lights ON (may be disabled)
- repeated alarm tone for lights OUT
- only 3 wires are required for hook-up
- supply voltage: 12V battery
- PCB dimensions: 48 x 57mm (1.9" x 2.2")
- recommended housing: WCAH2855



## ANTI SPEAKER PLOP FOR K3503 CAR BOOSTER

### ■■■■■ K3506

Prevent any annoying plop occurring in speakers when switching the K3503 car booster on and off. In addition, it provides protection for the MOSFET transistors and the car battery (monitoring the voltage drop). The entire circuit can be built into the car booster housing.

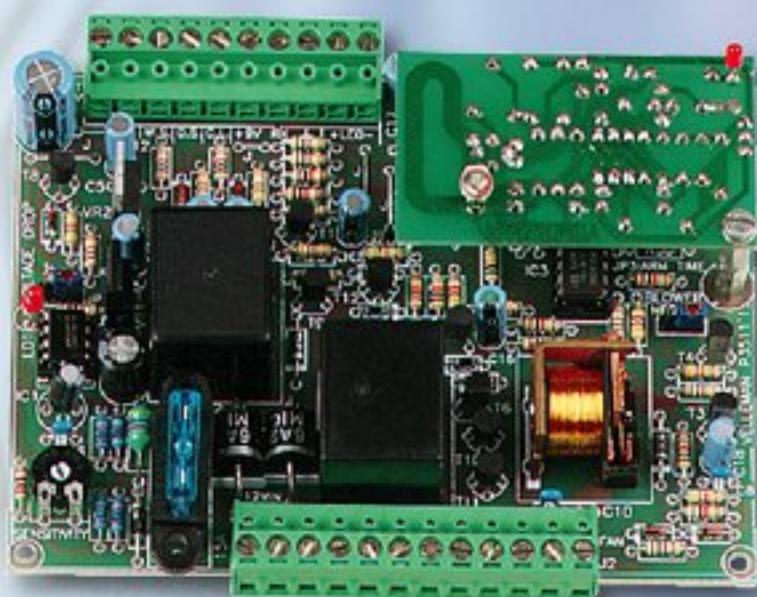
- soft start of the switched mode power supply
- switch-on delay of the speakers: ± 2 seconds
- immediate switch-off of the speakers when switching off the booster
- voltage monitor: switch off at +/- 10V
- only suitable for VELLEMAN K3503 2 X 100W car booster
- PCB dimensions: 57 x 51mm (2.2" x 2.0")



## REMOTE CONTROLLED CAR ALARM SYSTEM (RF)

### ■■■■■■■■■■ K3511

This outstanding car alarm is full of potential, able to connect up with and operate a variety of sensors. In addition, the remote control facility (RF) allows the central locking system to be operated together with the alarm.



- microprocessor technology
- multi-functional remote control operation
- audio and visual on/off indicators
- multifunction dashboard mounted LED
- automatic reset after alarm
- adjustable voltage drop (reaction to interior lighting)
- voltage drop detection active immediately, or after 5 minutes
- direct alarm trigger input (direct alarm after triggering)
- warning alarm trigger input (2 triggers within 15 seconds = alarm)
- warning input can be switched off with the remote control
- adjustable shock detector (can be switched off with the remote control)
- detector input for ventilator in order to avoid false alarms
- contact switches for bonnet and boot
- internal siren for on/off signal and alarm
- output for external siren and pager (5A)
- alarm time: 30 seconds
- starter interrupter for ignition or diesel fuel pump (15A)
- special starter motor interrupter relay (30A) supplied
- switch on protection if contact is on
- output to hazard lights (2 x 6A max.)
- output for central locking (100mA)
- selectable code for remote control transmitter and receiver (8.748 codes)
- automatically resets in the event of accidental switch off (60 seconds)
- diagnosis facility to identify a triggered sensor at a later time

- supply voltage: 12VDC
- consumption: 50mA in standby
- temperature range: -40 to +85°C
- battery for remote control unit: 12V type V23GA, V23A (not incl.)
- recommended housing: G313
- in option:
  - 951 ultrasonic detector
  - 959 radar intrusion detector

## 7W MONO AUDIO AMPLIFIER

### ■ ■ ■ ■ ■ K4001

This small amplifier is constructed around the TDA2003 IC, capable of delivering 4Wrms at 4 ohms. The IC is fully protected against overheating and short circuits. A conventional direct current is sufficient as power supply. Exists also in mounted version: VM114.

- music power output: 7W / 4ohm
- RMS output: 3.5W / 4ohm or 2W / 8ohm
- total harmonic distortion: 0.05% (1W / 1kHz)
- frequency response: 20Hz to 20kHz (-3dB)
- signal/noise ratio: 86dB (A weighted)
- input sensitivity: 40mV / 150Kohm
- overload and short-circuit protected
- supply voltage: 15VDC (8 to 18VDC possible) / 0.5A
- dimensions: 55 x 35mm (2.2" x 1.4")
- recommended transformer: 1150080M
- recommended adapter: PS1208 or PS1508

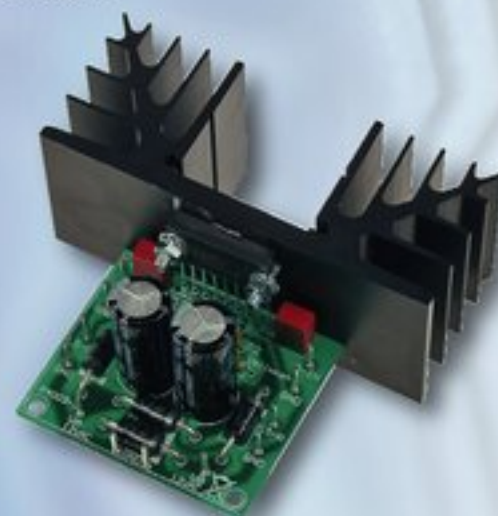


## 2 X 30W AUDIO POWER AMPLIFIER

### ■ ■ ■ ■ ■ K4003

This small amplifier is constructed with the TDA2616 IC, with a maximum supply capability of 2 x 15Wrms (4 ohm) or 2 x 10Wrms (8 ohm). The IC is protected against overheating and short circuits. Additional rectifier and smoothing filter are unnecessary because alternating current can be connected directly with the unit. Exists also in mounted version: VM113.

- music power output: 2 x 30W / 4ohm
- RMS output: 2 x 15Wrms / 4ohm or 2 x 10Wrms / 8ohm
- total harmonic distortion: 0.07% (1W / 1kHz)
- channel separation: 70dB
- frequency response: 7Hz to 60kHz (-3dB)
- signal-to-noise ratio: 98dB (A weighted)
- input sensitivity: 300mV / 150Kohm
- transient suppression on/off switch
- overload and short-circuit protection: max. 1h
- supply voltage: 2 x 12Vac / 2A (50W transfo recommended)
- dimensions: 70 x 50mm (2.8" x 2.0")
- recommended transformer: 212048 or 5012



## 200W MONO / STEREO AMPLIFIER

### ■ ■ ■ ■ ■ K4004B

Universal, robust and compact are the key words that describe this amplifier. Universal : A stereo or a mono amplifier. Three input sensitivity settings. Robust : overload and short-circuit protection, protection against incorrect power supply polarity and thermal protection. Speaker transient suppression.

- rms output power: 2 x 50W / 4ohm ; 2 x 40W / 8ohm
- rms mono-bridged power: 100W / 8ohm
- total music output: 200W
- harmonic distortion: 0.01% at 1kHz
- signal-to-noise ratio: 102dB (A weighted)
- stereo channel separation: 85dB
- damping factor (at 100Hz): > 1000
- input impedance: 22Kohm
- input sensitivity: 300mV, 550mV or 1V switchable
- thermal protection: max. 1h
- short-circuit and overload protection: max. 10 sec.
- power supply: + 28VDC and - 28VDC max.
- consumption (2 x 4ohm or mono-bridge 8ohm): 4A max.
- consumption (2 x 8ohm): 2.5A max.
- dimensions: 210 x 85 x 64mm (8.3" x 3.4" x 2.5")



## 400W MONO / STEREO AMPLIFIER

### ■ ■ ■ ■ ■ K4005B

Universal, robust and compact are the words to describe this amplifier. Universal : A stereo or a mono amplifier. Three input sensitivities are selectable. Robust : Overload and short-circuit protection, protection against incorrect power supply polarity and optional thermal protection. Speaker transient suppression.

- rms output power: 2 x 100W / 4ohm ; 2 x 75W / 8ohm
- rms mono-bridged power: 200W / 8ohm
- total music output: 400W
- harmonic distortion: 0.003% at 1kHz
- signal-to-noise ratio: 96dB (A-weighted)
- stereo channel separation: 76dB
- damping factor (at 100Hz): > 2000
- input impedance: 22kohm
- input sensitivity: 150mV, 300mV or 950mV switchable
- supply voltage for 8 ohm: + 35 to 40VDC and - 35 to 40VDC / 2.5A
- supply voltage for 4 ohm or mono: + 25 to 30VDC and - 25 to 30VDC / 5A
- dimensions: 350 x 62 x 85mm (13.8" x 2.5" x 3.4")



## POWER SUPPLY FOR K4004B AND K4005B

Transformer required:



KIT	SPEAKER	POWER SUPPLY	TRANSFORMER
K4005B	2 x 8 ohm	2 x 30VAC/225VAC	type 22530
K4005B	2 x 4 ohm	2 x 21VAC/300VAC	type 30021
K4005B	1 x 8 ohm	2 x 21VAC/300VAC	type 30021
K4004B	2 x 8 ohm	2 x 18VAC/160VAC	type 16018
K4004B	2 x 4 ohm	2 x 18VAC/225VAC	type 22518
K4004B	1 x 8 ohm	2 x 18VAC/225VAC	type 22518

## 300W MONO MOSFET AMPLIFIER

Heatsink and transformer are included. Ideally suited for installation in disco bars and active speaker systems.

- music power: 300W / 4ohm ; 200W / 8ohm
- rms power: 155W / 4ohm ; 100W / 8ohm
- harmonic distortion: 0.005%
- damping factor: > 600
- input sensitivity: 1Vrms
- signal-to-noise ratio: 112dB (A-weighted)
- frequency response: 3Hz - 120kHz
- speaker switch-on delay and protection
- thermal and short-circuit protection
- power supply: 230Vac
- dimensions: 270 x 90 x 140mm (10.6" x 3.5" x 5.5")
- weight: 4.8Kg



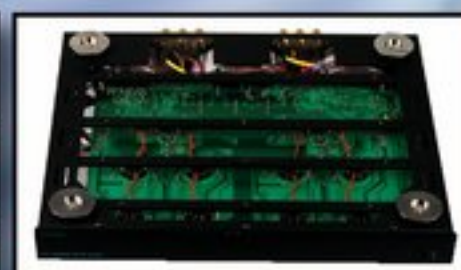
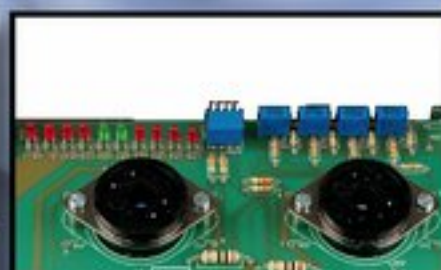
## STEREO VALVE AMPLIFIER / CHROME VERSION

For most of us a high power valve amplifier is unaffordable. This kit changes that, so that now everybody can enjoy that sublime "valve sound". The sound of valves cannot be surpassed, neither by transistors nor FETs. In the development process, special attention was given to the housing so that the expensive valves are displayed in a visually attractive manner. The most vulnerable point of a valve amplifier are the output transformers; that's why we use ultra-linear and overrated output transformers (toroidal) to guarantee a rich bass response. To extend the life of the precious valves, the amplifier has a switch-on delay so that the high voltage is switched on when the valves are warmed up.

• pure valve sound with high-quality EL34 valves  
 • high-quality black and chrome housing  
 • chrome valve socket covers  
 • easy bias adjustment with LED indication  
 • removable bottom for easy access and service  
 • high-quality capacitors and components  
 • gold-plated input and speaker terminals  
 • standby function  
 • "soft-start" circuit for power transformer

## STEREO VALVE AMPLIFIER / BLACK VERSION

• output power: 2 x 90Wrms music power for loads of 4 or 8 ohm  
 • power bandwidth: 15Hz - 40kHz (-3dB ref. 50W)  
 • frequency range: 8Hz - 80kHz (-3dB ref. 1W)  
 • harmonic distortion: 0.08% (1kHz / 1W) / 0.7% (1kHz / 90W)  
 • signal-to-noise ratio: > 105dB (A-weighted ref. 90W)  
 • channel separation: > 75dB (ref. 90W)  
 • input impedance: 34Kohm  
 • input sensitivity: 1Vrms at 95W  
 • damping factor: > 10 (100Hz)  
 • weight: 17Kg  
 • dimensions: 425 x 130 x 350mm (16.7" x 5.1" x 13.8")



## DIGITALLY CONTROLLED PREAMPLIFIER

■■■■■■■■■■ K4100

A pre-amplifier is an indispensable device for controlling a power amplifier e.g. our K4040 valve amplifier or K8040 amplifiers. When developing this pre-amplifier we opted for DIGITAL control of all functions so that the end product contains no potentiometers at all! All functions, such as volume, tone control, balance and input selection can be operated using push buttons. A LED display gives a clear indication of all settings. Most functions can be operated with a remote control unit (K8049 available as an option).

- input sensitivity:
  - PHONO: 5.5mV / 50Kohm
  - CD: 500mV / 32Kohm
  - TUNER, TAPE1 & 2: 360mV / 22Kohm
- output level: LINE: 1V
- signal-to-noise ratio (A weighted):
  - PHONO: 75dB
  - TAPE, CD, TUNER: 100dB
- total harmonic distortion: 0.01%
- frequency response: 8Hz - 150kHz (-3dB)
- channel separation: 90dB
- cross talk: -99dB
- headphones output: 280mW / 32ohm
- mains output: 5A
- consumption: 6W max.
- dimensions: 425 x 50 x 350mm (16.7" x 2.0" x 13.8")
- weight: 5Kg



## GUITAR PREAMPLIFIER WITH HEADPHONES OUTPUT

■■■■■■■■■■ K4102

An electric guitar cannot be connected to just any amplifier or audio installation. This pre-amplifier has been designed for this purpose and provides you with a headphone output, allowing you to practice without disturbing others. Moreover, it is fitted with a special device for tone adjustment so you can create your own sound.

- sound adjustment
- adjustable input sensitivity
- low noise
- headphones output: max. 2 x 50mW / 32ohm
- housing included
- power supply: 9V battery (not incl.)
- dimensions: 70 x 30 x 105mm (2.8" x 1.2" x 4.1")



## PINK NOISE GENERATOR

■■■■■■■■■■ K4301

A good pink noise generator and a spectrum analyser are indispensable if you want to analyse the acoustic properties of a room (usually a living room). Moreover, you also need a microphone with a frequency characteristic that is as linear as possible (from 20Hz to 20kHz). If you have an equaliser, then the response can not only be checked but also corrected. The kit is easily adapted to produce "white noise".

- pseudo random digital noise
- regulator sliding length: 33 bit
- clock frequency: adjustable between 30 and 100kHz
- pink noise filter: 3dB / octave (20Hz to 20kHz)
- output voltage: 150mVrms
- output impedance: 1Kohm
- power supply: 9 - 12VAC or 12 - 15VDC / 5mA
- PCB dimensions: 72 x 43mm (2.8" x 1.7")
- recommended housing: G410
- recommended transformer: 1120007M
- recommended adapter: PS1205

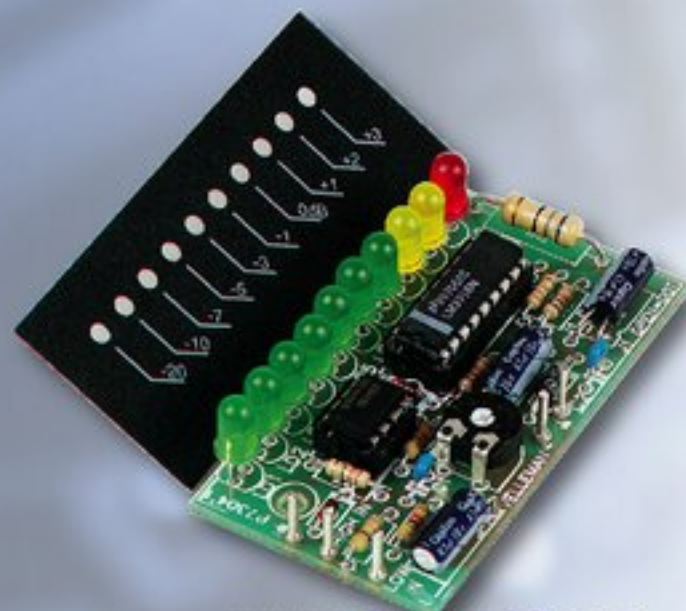


## MONO VU-METER 10 LEDS


■■■■■■■■■■ K4304

VU meter with a scale consisting of 10 LEDs and an adjustable input. Dot or bar indicator. Supplied with 1 front panel suitable for horizontal or vertical mounting.

- range: -20dB to +3dB
- power supply: 10 - 15VDC / 250mA
- input sensitivity:
  - low input: 150mV to 6Vrms (47K)
  - high input: 1.5V to 60Vrms (470K)
- dimensions: 37 x 68mm (1.5" x 2.7")
- recommended transformer: 1120007M
- recommended adapter: PS1203

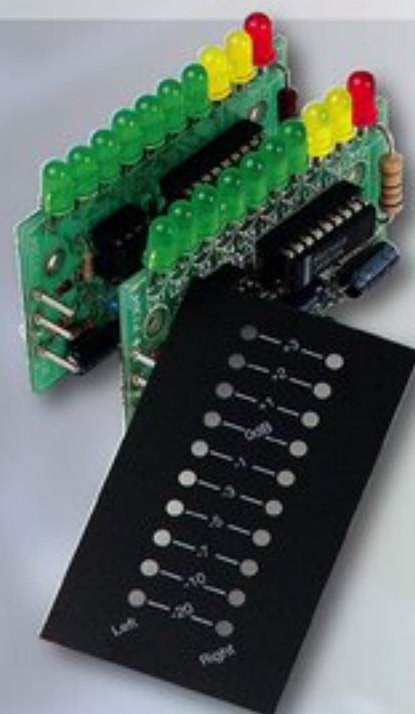


## STEREO VU-METER 2 X 10 LEDS

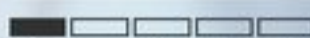
 **K4305**

Stereo VU meter with 2 x 10 LEDs (dot or bar indicator) and an adjustable input. Package contents include 1 front panel suitable for horizontal or vertical mounting.

- range: -20dB to +3dB
- power supply: 10 - 15VDC / 250mA
- input sensitivity:
  - low input: 150mV to 6Vrms (47K)
  - high input: 1.5V to 60Vrms (470K)
- dimensions: 37 x 68mm (1.5" x 2.7") (x2)
- recommended transformer: 1120007M
- recommended adapter: PS1203

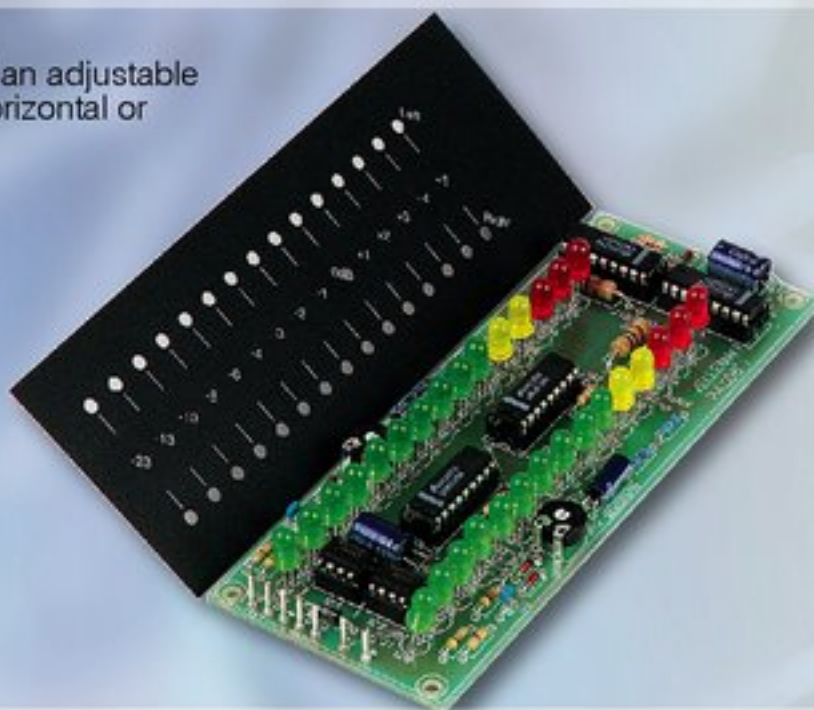


## PRECISION STEREO VU-METER 2 X 15 LEDS

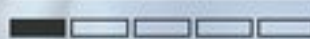
 **K4306**

Stereo VU meter with 2 x 15 LEDs (dot or bar indicator) and an adjustable input. Package contents include 1 front panel suitable for horizontal or vertical mounting.

- scale from: -23dB to +5dB (linear scale between -4 and +5dB)
- precision:  $\pm 0.5$ dB (1kHz)
- input impedance:
  - low input: 150mV - 5Vrms
  - high input: 1.5V - 50Vrms
- frequency range: 20Hz - 30kHz (-3dB)
- power supply: 12 - 15VDC / 300mA
- dimensions: 150 x 57mm (5.9" x 2.2")

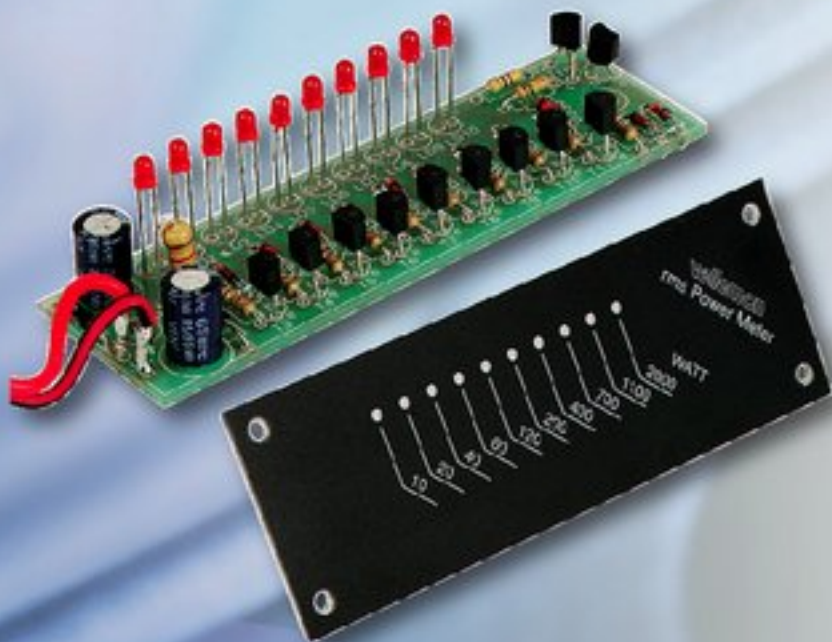


## AUDIO POWER METER

 **K4307**

10 LED scale, up to 2000Wrms power measurements. Does not need a special power supply, because it is supplied directly from the speaker output. Ideal for car audio systems and PA systems. Also usable for bridged amplifiers. The unit can be used both horizontal and vertical. The kit comes with a front panel and four attractive front stickers, for the different scales. Exists also in mounted version: M4307A, M4307B, M4307C, M4307D

- four different scales:
  - at 4 ohm load in low power mode: 0.3 to 400Wrms
  - at 4 ohm load in high power mode: 10 to 2000Wrms
  - at 8 ohm load in low power mode: 0.15 to 200Wrms
  - at 8 ohm load in high power mode: 5 to 1000Wrms
- minimum input sensitivity: 1.1Vrms (low power mode)
- maximum input voltage: 130Vpeak (high power mode)
- current consumption: 25mA at full scale
- luminous intensity: 8 to 20mcd / LED
- dimensions: 120 x 40 x 28mm (4.7" x 1.6" x 1.1")



## SOUND GENERATOR

### ■■■■■ K4401

The ideal device for DJ's, jingles for radio stations or just to attract attention. With one output for direct connection to a speaker and one line output for connecting to a mixer panel or amplifier. The following effects may be generated directly by means of a push button : Machine gun · European siren · Phasor gun · Racing car with motor howl · Screeching of car tires on a curve · Explosion · Mortar fire followed by explosion · Music : "Wild charge tune" or "Snake charmers tune" · US siren

- supply voltage: 8 - 10VDC / 100mA or 9V battery (not incl.)
- line output: 1Vrms
- speaker output: 1W
- PCB dimensions: 75 x 75mm (3.0" x 3.0")
- recommended housing: WCAH2851
- recommended transformer: 1090030M
- recommended adapter: PS905



## AUDIO/VIDEO TV MODULATOR

### ■■■■■ K4601

You will need this modulator if you want to connect a video signal originating from a camera or other video source to a normal TV set. The audio and video signal is converted into a UHF TV signal so that the signal can be received through the TV antenna input. In certain countries (consult your national telecommunications authority) it is legal to use this modulator as a mini transmitter by connecting a small antenna. This makes it possible to receive the signal from the video recorder or camera in another room of your home (range approx 30m, 98'). The kit comes complete with housing and an antenna connector.

- input: audio and video
- output: UHF0 channel 21 (450 - 500MHz adjustable)
- power supply: 12 to 15VDC / 100mA
- dimensions: 70 x 104 x 30mm (2.8" x 4.1" x 1.2")
- recommended adapter: PS1203



## VIDEO AND RGB CONVERTER/PROCESSOR

### ■■■■■ K4600

To process a PAL colour video signal it first has to be converted back into the original Red, Green and Blue signals. This allows the colours to be adjusted separately along with the colour intensity, brightness and contrast. Once processed the signal can be converted back into a PAL video signal. The user can choose PAL video or RGB output. In addition space is provided on the PCB for a UHF modulator (our type RFMOD) so you can use the antenna input of your TV or video. An SVHS input signal can also be connected.

- colour system: PAL (CCIR)
- controls for brightness, contrast and saturation
- separated controls for Red, Green and Blue
- composite video input (RCA-connector)
- RGB input (option)
- input level: 1Vpp
- input impedance: 75 ohm
- composite video output (RCA-connector)
- RGB-output: 9-pin SUB-D
- output level: 1Vpp
- output impedance: 75 ohm
- RF antenna in/output (in option RFMOD)
- housing included
- power supply: 16VDC / 0.5A unregulated
- PCB dimensions: 170 x 140mm (6.7" x 5.5")
- dimensions: 200 x 67 x 170mm (7.9" x 2.6" x 6.7")
- recommended adapter: PS1508



## 2-CHANNEL LOUDSPEAKER PROTECTION

### ■■■■■ K4700

This stereo speaker protection prevents switch-on clicks and DC components on the output of the amplifier connected.

- switch-delay: ± 6 seconds
- DC protection: +1V/-1V
- max. input voltage: 200Vpp + DC
- max. switching current: 10A
- LED indication for: WAIT (switch-on delay) and ERROR (DC on speaker output)
- supply voltage: 220VAC
- PCB dimensions: 55 x 125mm (2.2" x 4.9")
- recommended housing: WCAH2851



## LOUDSPEAKER DC-PROTECTION

■ □ □ □ □ **K4701**

Burn out of a power amplifier's output stage nearly always results in a dangerous direct current to the loudspeaker's terminals. In turn, this results in loudspeaker burn out.

This protection unit, requiring no supplementary supply, is simply mounted between the amplifier and the speaker in the speaker cabinet and disconnects the speaker as soon as a direct current appears. Also ideally suited for use in the car. Exists also in mounted version:

M4701A: Loudspeaker DC protection up to 30W max.

M4701B: Loudspeaker DC protection up to 300W max.

- maximum input voltage: 90VDC
- max. contact current: 10A
- minimum safety voltage: 10VDC
- no external supply needed
- dimensions: 40 x 67mm (1.6" x 2.6")
- recommended housing: G410



## 4-CHANNEL MULTI-FUNCTION RUNNING LIGHT

■ ■ ■ □ □ **K5200**

This circuit does more than an ordinary running light : it not 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.

- 4 triac outputs: max. 2A each (400W at 220V or 200W at 110V)
- can be synchronised to mains or can work asynchronously
- running speed: adjustable in asynchronous mode, fixed speed in synchronous mode
- suppression of radio interference in synchronous mode
- supply voltage: 220VAC
- PCB dimensions: 110 x 85mm (4.3" x 3.4")
- recommended housing: WCAH2851



## TELEPHONE AMPLIFIER

■ ■ ■ □ □ **K4900**

This telephone amplifier may be used as a freestanding amplifier with speaker, e.g. to listen to a telephone conversation, or the output may be connected to an amplifier or mixing panel (e.g. radio stations).

- input: isolation transformer interface
- speaker output: 0.5W / 8ohm
- line output: 0dB (0.775Vrms)
- power supply: 7 - 9VAC or 9 - 12VDC / 150mA
- PCB dimensions: 63 x 52mm (2.5" x 2.1")
- recommended housing: G416 or WCAH2853
- recommended transformer: 2090060M
- recommended adapter: PS1203



## LIGHT COMPUTER

■ ■ ■ □ □ **K5201**

Sixteen different programs and seven outputs make this light computer a unique showpiece. This kit can find applications in party lighting, discotheques, advertisement lighting, signalling, etc. To be able to view the programs directly, each output is provided with a LED. The complete circuit can be installed so that all operations and LEDs are available from the front panel. 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.

- 7 triac outputs: 1.5A max.
- supply voltage for the lights: 24VAC to 240VAC
- supply voltage of the circuit: 7.5 - 9VAC / 250mA
- 16 programs
- speed controllable
- input for external clock
- PCB dimensions: 134 x 79mm (5.3" x 3.1")
- recommended housing: WCAH2852
- recommended transformer: 1090030M
- recommended adapter: PS905AC





## DUAL FUNCTION STROBE

■ ■ ■ ■ ■ □ □ □ **K5203**

Create fantastic light effects for disco, photographs, signalisation, ... Two operation modes. The first operation mode flashes on power down, for use in combination with light computer K5201, running lights K5200 or other light effect generator. The second operation mode flashes continuous with adjustable speed. Simple two-wire connection. High power flash tube. Power on LED. Reflector included.

- power supply: 230VAC / 50Hz
- power consumption: 20W max. / 3W standby
- max. flash rate: 20 flashes per second
- dimensions: 70 x 120 x 50mm (2.8" x 4.7" x 2.0")



## ADVERTISEMENT LED DISPLAY

■ ■ ■ ■ ■ □ **K5600G** WITH GREEN LEDS

■ ■ ■ ■ ■ □ **K5600R** WITH RED LEDS

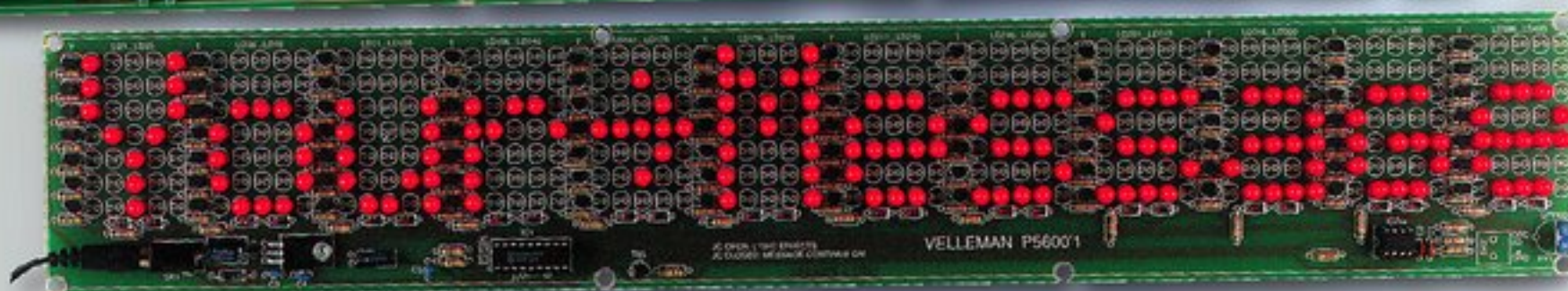
Create your own message for personal advertisements. Can be used for home, shop, car or truck... 12 self definable characters, which are made by de customer. 150 bright LEDs supplied with the kit. Many spectacular light effects on the message, (scrolling, blinking, rolling, panning...). Adjustable effect speed. Vertical or horizontal position possible. Fixed displaying is possible (no effects). Different displays can be synchronised, to create longer messages, or to create giant advertisements. Special housing available : B5600. Extra LEDs available : K/LEDHR (red) and K/LEDHG (green).

- 12 character positions
- 5 x 7 LED matrix for each character
- bright LEDs: 60 to 80mcd (max.)
- microprocessor technology
- oscillator output for synchronisation with other display(s) (master / slave configuration)
- voltage supply: 12 to 28VDC
- reverse polarity protected
- consumption: 760mA
- dimensions: 80 x 473mm (3.2" x 18.6")
- recommended housing: B5600
- recommended adapter: PS1208



optional enclosure : B5600

### FIXED MESSAGE ~ NOT PROGRAMMABLE



## SET WITH 50 EXTRA LEDS

**K/LEDHG** WITH GREEN LEDS

**K/LEDHR** WITH RED LEDS

For use with K5600G / K5600R. Advertisement LED display.

- luminous intensity: 60mcd max.
- 50pcs

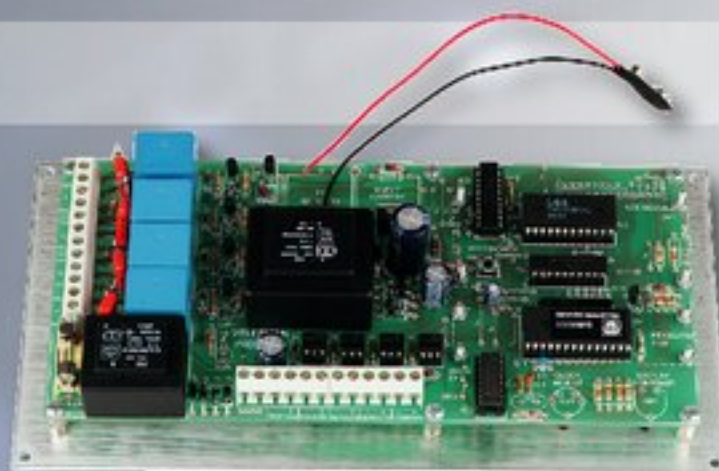


## MICROPROCESSOR CONTROLLER/TIMER

### K6000

This marvellous controller does not just have the features of a conventional week/day timer; it can also be used to control temperature independently with one or all four outputs. For temperature measurements the K6001 or K6003 sensor is required for each measuring point (max. 4). The advantage of these sensors is that temperature may be measured far from the actual controller. The controller displays a message when a sensor is out of order and will switch off the corresponding output. The controller/timer is equipped with an LCD display, where all data, such as output number, temperature or on/off, day and time are displayed.

- 4 noise-free relay outputs: max. 5A / 220V
- 4 optocoupler inputs for temperature sensors K6001 or K6003
- 50 program steps per output (total 200)
- week or day programming possible
- supply voltage: 220VAC
- memory backup: 24 hours with 9V battery / 8 hours with 4.8V NiCd battery
- dimensions (front panel): 234 x 120mm (9.2" x 4.7"), depth 50mm (2.0")
- transformer included



## TEMPERATURE SENSOR

### K6001

This kit has been developed especially to be combined with the K6000 or K6002 to build a temperature regulation and control system. The advantage of a separate sensor lies in the fact that the distance between the actual controller and the sensor is of no importance.

- sensor temperature range: -40°C (-40°F) to +150°C (302°F)
- pulse width modulation: 200µsec/°C
- linearity from -10°C (14°F) to 50°C (122°F): better than 0.5%
- tested up to 50m (164') (distance between sensor PCB and controller)
- supply voltage: 12VDC (± 2V) non-regulated
- current: 20mA max.
- PCB dimensions: 45 x 47mm (1.8" x 1.9")
- recommended housing: MODELA1 or G404
- recommended adapter: PS1203

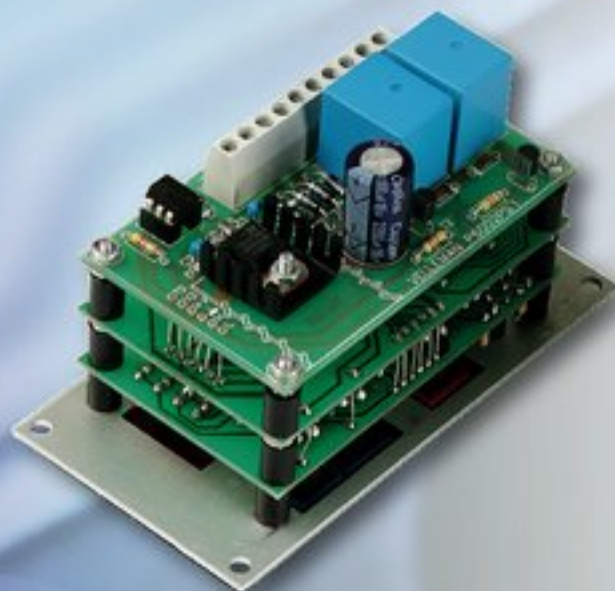
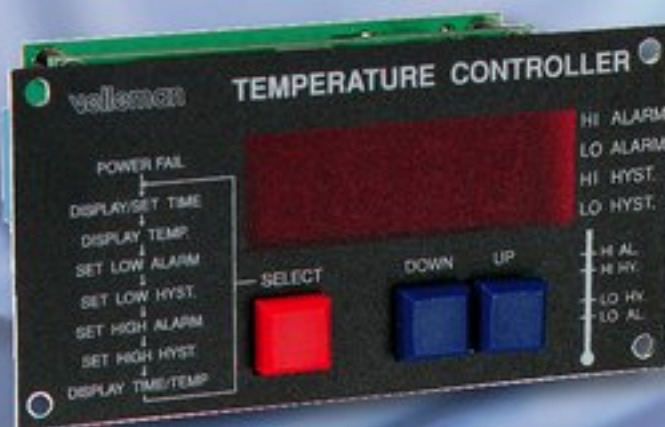


## TEMPERATURE CONTROLLER

### K6002

Unlike a normal thermostat, this kit has two outputs, one for "high" alarm, e.g. to switch on the air conditioning, and one for "low" alarm, e.g. to switch on the central heating. Both alarms are adjustable independently, each with their own hysteresis. Sensor K6001 included.

- relay outputs: 5A / 220VAC switch-over contact
- resolution: ± 0.1°C (0.2°F)
- display from -40°C (-40°F) to +150°C (302°F)
- 24-hour clock (50Hz mains frequency)
- alarm setting: from -50°C (-58°F) to +154°C (309°F)
- separate optocoupled sensor input (for K6001)
- power supply: 9VAC / 300mA
- front panel dimensions: 60 x 117mm (2.4" x 4.6"), 80mm (3.2") depth
- recommended transformer: 1090025M
- recommended adapter: PS905AC



## TEMPERATURE SENSOR WITH LED DISPLAY

### ■■■■■□ K6003

This temperature sensor has the same features as the K6001. In addition, it has an LED display, showing the following three items : 1) Current temperature reading ; 2) Minimum temperature setting ; 3) Maximum temperature setting. A splendid aluminium housing with front sticker is included.

- min. and max. thermometer
- sensor temperature range:  $-50^{\circ}\text{C}$  ( $-58^{\circ}\text{F}$ ) to  $+150^{\circ}\text{C}$  ( $302^{\circ}\text{F}$ )
- can be set to degrees Fahrenheit
- display: 3 1/2 digits (0.1° display resolution)
- power supply: 12 to 15VDC / 150mA
- dimensions: 144 x 50 x 22mm (5.7" x 2.0" x 0.9")
- recommended adapter: PS1203



## 0 TO 60 HOURS START/STOP TIMER

### ■■■■□□□ K6200

If a device has to be switched off after a specified amount of time, then this timer is the ideal solution. Because of the large range of the timer, it may be used in almost any applications, such as switching off television and hifi-equipment, lights (staircase lighting), safety timer for coffee machine, dark-room timer, providing a short ringing signal, etc. Push buttons are provided for starting and early stopping, but it is also possible to control the circuit by means of a relay or an open collector (e.g. our 15 channel remote control receiver K8050)

- relay output: 5A / 220V
- range: from  $\pm 3$  seconds to  $\pm 60$  hours
- power supply: 24VAC / 50mA, 220VAC or 110VAC
- recommended housing: B6713



## CODE LOCK

### ■■■■□□□ K6400

This code lock may be used to switch an alarm (e.g. car alarm K3504) on and off, or to open a door lock. An LED on the operating panel indicates the position of the 'lock'. The code is easy to define. Because the operation panel is completely enclosed, it may be used inside and outside the house.

- more than 3000 codes (4 digits)
- relay output: 5A / 220V
- time limit for code entry:  $\pm 5$  seconds
- power supply: 9 - 15VDC or 8 - 12VAC
- power consumption:
  - output on: 40mA
  - output off: 0.3 $\mu\text{A}$
- dimensions: front panel : 80 x 80mm (3.2" x 3.2"), depth : 40mm (1.6")
- recommended transformer: 1120007M



## REMOTE CONTROL BY TELEPHONE

### ■■■■□□□ K6501

This kit makes it possible to turn up to three devices on or off over the telephone. It is also possible to check the condition of a switch (open or closed). Example : when you are away on holiday, you may switch the lights on and off from time to time, check the alarm or turn on the heating before returning home. A major advantage of this circuit lies in the fact that audio signals are used to tell whether a specific output has been turned on or off. Operation is protected by a user defined code, which is simply keyed in from the telephone keypad.

- a relay is included for one output: 10A / 250VAC
- automatic pick-up can be selected for  $\pm 8$  or  $\pm 3$  rings
- automatic hang-up if no code is entered within 20 seconds
- supply voltage: 12VAC / 300mA
- dimensions: 105 x 130mm (4.1" x 5.1")
- recommended housing: D30B
- recommended transformer: 1120038M
- recommended adapter: PS1205AC
- spare relay : VR10V121C



## THERMOSTAT WITH REMOTE CONTROL VIA THE TELEPHONE

### ■ ■ ■ ■ □ □ K6502

The thermostat is used as any other one, but with the added facility of choosing the day or night temperature setting by means of a telephone. The remote control facility is operated via the telephone keypad, thus a DTMF type phone is required. From audio signals sent down the line, the user receives a report back on how the thermostat is set. Switching is protected by a security code, set by the user, which is keyed into the telephone in a simple manner.

- separate settings for day and night temperature with LED indication
- relay output with LED indication: 5A / 240VAC (1200W)
- telephone pick-up after  $\pm 3$  or 8 rings
- report when the temperature has fallen below 3°C
- automatic hang-up if no code is received within 40 seconds
- possible security codes: from 000 to 999
- day temperature: from 14°C to 26°C (57°F to 79°F)
- night temperature setting: from 6°C to 18°C (43°F to 64°F)
- hysteresis (allowed temperature swing): 0.1°C
- local manual control
- supply voltage: 220VAC



## MULTITONE CHIME

### ■ □ □ □ □ K6600

This device is a simple and economic way of generating electronic tones. This kit is primarily intended for use as a replacement for the traditional mechanical doorbell. Of course, it can also be used for many other types of applications. The number of tones may be selected up to a maximum of three, each of which is output one after the other. This can be used to help locate the place being called. Volume and tone can also be set. The existing bell transformer can be used as a power supply.

- adjustable tone and volume control
- 1, 2 or 3 tones selectable
- loudspeaker output: 0.3W / 8ohm
- power supply: 6 to 9VAC / 0.2A or 4.5V battery (3 x 1.5V AA batteries (not incl.))
- idle current: less than 10 $\mu$ A
- dimensions: 53 x 59mm (2.1" x 2.3")
- usable battery housing: BH331B
- recommended housing: WCAH2851, G416 or G410
- recommended transformer: 1090025M
- recommended adapter: PS905AC

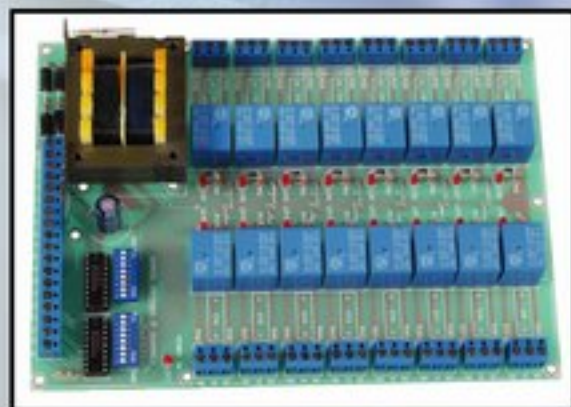


## UNIVERSAL RELAY CARD

### ■ ■ ■ ■ □ □ K6714

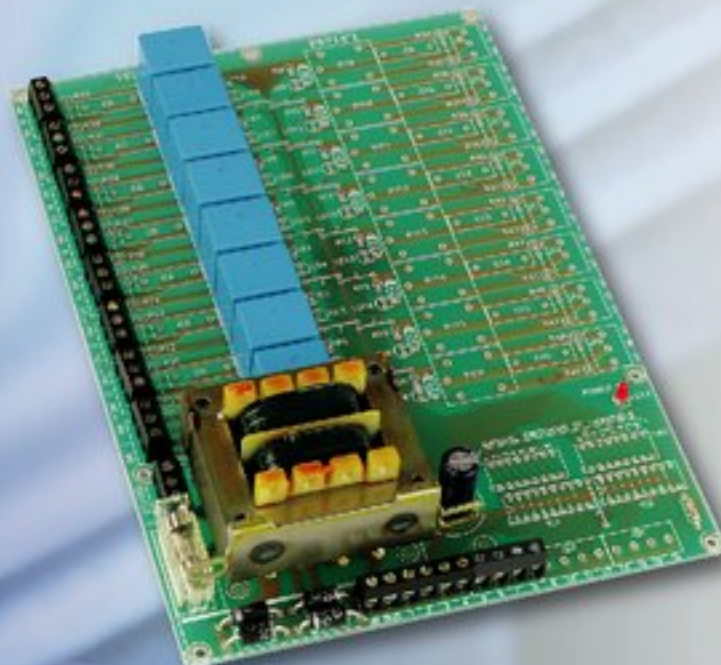
If you want to switch large electric currents using an electronic control and require control isolation at the same time, then this card is a valuable asset.

- 8 relays included (extendible to 16)
- the relays can be piloted directly or through open-collector outputs
- contact: 1 x inverter: 10A / 28VDC or 125VAC, max. 5A at 230VAC
- output voltage: 12V / 250mA for power supply
- power supply: 220 or 115VAC / 12VA
- PCB dimensions: 150 x 212mm (5.9" x 8.4")
- recommended housing: WCAH2507



also available with 16 relays

### ■ ■ ■ ■ □ □ K6714-16



## SIGNAL TRACER/INJECTOR

### ■■■■■■■■■■ K7000

This signal tracer /injector has been designed to inject or detect a specific signal into an audio circuit in need of repair (such as amplifiers, radios, tone controls, ...) so as to detect the fault. In this way problems can be traced more easily. The signal tracer may also be used as a simple monitor or amplifier.

- injector:
  - 0-2.5Vrms output (adjustable)
  - output impedance: 1.5Kohm
  - frequency:  $\pm$  1kHz
- tracer:
  - 3.5mV to 10Vrms sensitivity (adjustable)
  - gain: 40dB
  - input impedance: 50Kohm
- output power: 0.5W / 8ohm
- power supply: 7-9VAC or 9-12VDC / 150mA
- dimensions: 60 x 53mm (2.4" x 2.1")
- recommended housing: WCAH2853
- recommended transformer: 2090050M
- recommended adapter: PS1203



## METAL DETECTOR

### ■■■■■■■■■■ K7102

To come up against an electric cable while drilling a hole in a wall can have catastrophic consequences. Likewise, drilling into gas, water pipes or central heating pipes can be extremely hazardous. With a handy metal detector it can now be determined beforehand whether there are metal objects to be found in a wall, ceiling or floor. An LED indicates if a metal object is in the vicinity. If an audio signal is also desired, space has been provided on the PCB for buzzer type SV4/12-S to be connected. The PCB has been specially constructed to fit entirely into the separately available box type G407.

- metal detecting distance adjustable: up to 8cm (3.15")
- power supply: 9V battery (not incl.)
- LED indication (optional buzzer SV4/12-S)
- dimensions: 56 x 64mm (2.2" x 2.5")
- recommended housing: G407

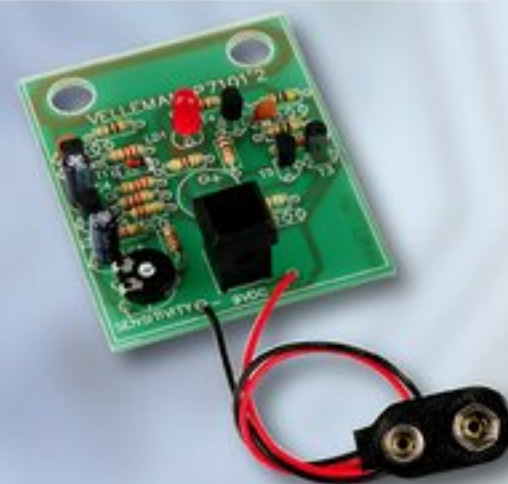


## MAINS VOLTAGE DETECTOR

### ■■■■■■■■■■ K7101

With this device wires can be very easily checked for mains voltage. It can be used to search for wires installed in or behind walls or to trace interruptions in wiring. A flashing LED indicates whether or not voltage is present. The flashing speed indicates how close by the wire is. If an audible signal is also desired, space has been provided on the PCB for buzzer SV4/12-S to be connected. The PCB has been specially constructed to fit entirely into the separately available box type G407.

- detection of mains conducting cables
- LED indication (buzzer optional)
- adjustable detection distance: max. 10cm, 3.9"
- distance indication
- supply voltage: 9V battery (not incl.)
- dimensions: 56 x 64mm (2.2" x 2.5")
- recommended housing: G407



## 0-30V / 0-10A POWER SUPPLY

### ■■■■■■■■■■ K7200

A laboratory power supply is no doubt a valuable device both for the professional and amateur electronics engineer. Both a digital voltmeter and a digital ampere-meter are provided. Because of the integrated fan the power supply is capable of operating at full load for an extended time. Supplied complete with housing, knobs, transformers and digital display.

- output voltage: continuously adjustable from 0 to 30V
- output current: 8A continuous, 10A max. (limitation adjustable from 0 to 10A)
- LED indication for current limitation
- ripple max.: 0.5mVrms
- short-circuit protection
- power consumption: 300W max.
- voltage supply: 220Vac
- dimensions: 330 x 90 x 215mm (13.0" x 3.5" x 8.5")



## 3 TO 30V / 3A POWER SUPPLY

### ■ ■ ■ ■ □ □ K7203

This kit is meant as an auxiliary or as a permanent power supply for all common Velleman kits based on a stabilised DC voltage between 3 and 30V provided that the consumption does not exceed 3A. Of course this power supply unit can also be used for other purposes. By replacing the trimmer by a potentiometer, it may even be used as an adjustable power supply unit. Supplied with heat sink.

- output voltage: adjustable from 3 to 30V, stabilised
- output current: max. 3A
- output ripple voltage: 0.5mV
- short-circuit stable
- overload protected
- input voltage: 9 to 30VAC (depending on the desired output voltage)
- transformer not supplied
- dimensions: 130 x 91 x 50mm (5.1" x 3.6" x 2.0")
- recommended housing: L750 or L760



## LOW COST UNIVERSAL BATTERY CHARGER

### ■ □ □ □ □ K7302

Charges NiCd or NiMH batteries. Ideal for car use. Transforms a mains adapter in to a charger (adapter socket included). Charge cellular phone, toys, portables, video batteries, ... Selectable charging current. LED charge indication.

- charging current: 50mA, 100mA, 200mA, 300mA, 400mA (selectable)
- supply voltage: from 6.5V to 21V (depending on used battery)
- supply current: same as charging current
- power supply polarity protected
- LED function indication
- dimensions: 40 x 60mm (1.6" x 2.4")
- recommended housing: G403



## UNIVERSAL BATTERY CHARGER/DISCHARGER

### ■ ■ □ □ □ K7300

Many battery chargers are available on the market, but few of them are universal chargers. Using our kit, NiCd and NiMH batteries can be charged both quickly (52 minutes) and normally (14 hours). In order to ensure that the battery is fully discharged prior to charging and thus has a longer life cycle, an automatic discharger is also fitted.

- charging current: from 15mA to 750mA (selectable)
- charges both NiCd and NiMH batteries
- usable battery voltages: 1.2V, 2.8V, 3.6V, 4.6V, 6V, 7.2V, 8.4V and 9.6V
- quick charge in 52 minutes / normal charge in 14 hours
- automatic discharge and charge cycle
- dimensions: 85 x 78mm (3.4" x 3.1")
- recommended housing: G311
- recommended adapter: PS1508



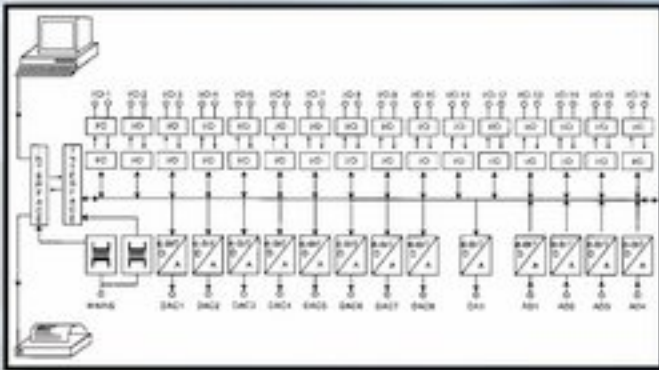
## PC INTERFACE BOARD

**K8000**

To enable a computer to communicate with the outside world, it is usually fitted with a keyboard, a display and perhaps a mouse. If however it is to be used in certain control applications, or certain control functions are to be carried out, then an interface is needed. The interface card here excels in its simplicity of use and installation. The card is connected in a very simple way to the printer port (there is no need to open up the computer). Likewise there is no need to install an extra printer port, even if a printer is to be used. This can be connected to the card in the usual manner. Connection to the computer is optically isolated, so that damage to the computer from the card is not possible. The card is controlled in a simple way using Turbo Pascal, QBasic, Visual Basic, Delphi, C++ (to use with MS-DOS, Win3.11, Win95, 98, ME, NT, XP, 2000). These procedures are pre-programmed and are provided along with a number of test and example programs on the diskette supplied. The card itself has 16 optically isolated digital connections, which can be freely chosen as either inputs or outputs (eg. 6 inputs and 10 outputs) according to how they are set up by the user. Furthermore, the card has 9 analogue outputs, of which one is high precision, and 4 analogue inputs. If this capacity is not sufficient for a particular application then up to 4 cards can be connected together (1 master and 3 slaves), such that an enormous potential exists. The card can be used with many of our other kits such as : K6714 16 channel relay card, K8023 10-channel 2-wire remote control.



- optically isolated from computer
- 16 optically isolated digital connections
- 9 analogue outputs, of which one is high precision and 4 analogue inputs
- a simple way of controlling using Turbo Pascal, Turbo C, Qbasic, Visual Basic
- printer bypass connector on board
- simple connection with printer port



- digital outputs: optocoupler, open collector output: 50mA - max. 30VDC
- digital inputs: optocoupler input: 5V/5mA, max. 20V/40mA
- analogue outputs :
  - 8 outputs DAC1 to DAC8, resolution: 64 steps
  - minimum output voltage: 0.1V at 2mA
  - maximum output voltage: 11.5V adjustable at 2mA
  - resolution per step from 0.1 to 11.5V: 160mV +/- 90mV
  - 1 precision output DA1, resolution: 256 steps
  - minimum output voltage: 0V
  - maximum output voltage: 4.5V adjustable at 0.5mA
  - resolution per step from 0 to 4.5V: 17.5mV
- analogue inputs :
  - 4 analogue inputs AD1 to AD4, resolution: 256 steps
  - minimum input voltage: 0V
  - maximum input voltage: 5V
  - input impedance: 50Mohm
  - resolution: 19.5mV
- communication protocol: I<sup>2</sup>Cbus
- LED indication for each I/O
- 25 pin D series connector for computer
- 25 pin D series connector for printer
- supply voltage: 230Vac
- PCB dimensions: 237 x 133mm (9.3" x 5.2")w

## INDEPENDENT PROGRAMMABLE CONTROL MODULE

**K8001**

If it is desired to use the interface card independently, without connecting to a computer, it can be done using this module. The module can be easily connected to the K8000 card, once programmed it can be decoupled from the computer and the system can continue to work independently. Programming is done using its own instruction set ( $\pm 2500$  steps) developed for this purpose. Not suitable for use with the K8005 stepper motor card.

- dimensions: 149 x 73mm (5.9" x 2.9")



## DC TO PULSE WIDTH MODULATOR

**K8004**

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. The great advantage of such a circuit is that almost no power is lost in the control circuit. Protected against overload and short circuit.

- power supply: 8 to 35VDC
- maximum output current: 6.5A
- input voltage: between 2.5 and 35VDC
- dimensions: 85 x 48 x 45mm (3.4" x 1.9" x 1.8")



## STEPPER MOTOR CARD

### K8005

For bi- and unipolar motors (maximum 1A). Easy to connect with K8000. High precision possible (up to 0.9°, or even more when using a motor with reduction). While the motor turns you can simultaneously check the status of switches using K8000, or drive another motor. You can always give an emergency stop signal. Test program included. Manual test buttons to test the card without K8000 interface. Can be used in every application where positioning is needed (for example a plotter, a printer, a valve, ...). High precision motor included (12V).

- I<sup>2</sup>C controlled via K8000
- communication address of the card (from 0 to 15) selectable via DIP-switches on the PCB (remark : connect up to 4 x K8005 cards with one K8000 card)
- adjustable drive speed
- programmable in Turbo Pascal for DOS, Quick Basic and Visual Basic (Win95/98/ME)
- emergency stop can be sent to one or all cards
- power supply: 7 to 25VDC or AC / 1.5A (maximum current depends of the motor type)
- dimensions: 100 x 90mm (3.9" x 3.5")
- recommended housing: G386

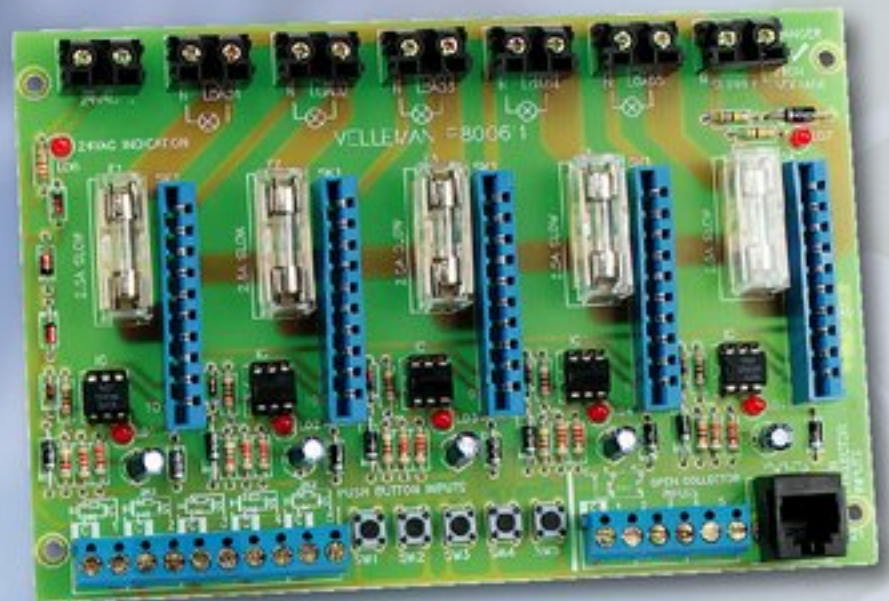


## DOMOTICA LIGHT SYSTEM - BUSPRINT

### K8006

Create your own domestic modular light control system. For use with optional plug-in dimmer K8037, plug-in timer module K8008 or plug-in slow-on/slow-off module K8029. Bus system holds up to five plug-in units. Optically insulated push button inputs. Can be controlled with open collector circuits (ex. K8000 computer interface card, with IR remote control receiver K8050 or with K8023). Local control pushbuttons included. LED power and mains indicator. LED operation indicator for each channel. Low-voltage (24VAC) control circuit for extra safety. Each plug-in slot is fused. Includes 10 LEDs for pushbutton illumination. A custom enclosure for rail mounting is available (B8006).

- 5 separated channels
- maximum output: 2.5A per channel (fuse protected)
- push button control current: 150mA
- open collector control current: 35mA DC
- power supply: 24VAC / 300mA
- supply voltage for modules: 110V to 240VAC
- dimensions: 107 x 160 x 70mm (4.2" x 6.3" x 2.8")
- recommended housing: B8006
- recommended transformer: 212024





## MULTIFUNCTION RELAY MODULE

### ■■■■■□□ K8008

14 different functions including timers, switching, flashing, interval, random switching, ... Two pre-programmed delays. Learning mode for delays of 2 sec. up to 12 days. Pushbutton control (with home modular light system K8006). EEPROM for delay time storage in case of power failure. On-board transient filter for relay contacts or load (selectable). Suitable for control of incandescent lighting, halogen lighting, fluorescent lighting, fans, valves, buzzers, ... Also available as stand-alone version: K8015

- operational voltages: 110-125 or 220-240Vac 50/60Hz
- max. load: 2.5A (550W / 220V ; 275W / 110V)
- dimensions: 65 x 57 x 25mm (2.6" x 2.2" x 1.0")



## MULTIFUNCTIONAL CLOCK

### ■■■■■■■■■■ K8009

6 x 36mm high digits. Time, Date & temperature indication, selectable with toggle option. 1 sec. resolution chronometer with lap function. Count down function to a specific date, the last day H:M:S are displayed. Scoreboard function (two players or teams, count up to 199). Random generator from 00 to 99. 2 digit dice. Count function. Chime beep option. Relay output for temperature control or time alarm. US or Europe display option for time, date, degrees Celsius or Fahrenheit format. All functions and settings are wireless remote controlled (wired remote is possible). Optional enclosure type B8009. Optional extra remote control type K8059.

- fixed 433.92MHz transmitter frequency, as required by law
- keychain remote control included
- temperature indication: from -20 to +70°C (resolution 1°)
- temperature indication: from 0 to +150°F (resolution 2°)
- memory backup option: 9V battery or rechargeable battery
- relay output: 1A / 24V max.
- power supply: 12VDC/300mA (adapter type PS1203)
- PCB dimensions: 255 x 80mm (10.0" x 3.2")
- recommended housing: B8009
- recommended adapter: PS1205
- optional remote control: K8059



## MONO 65W PURE CLASS A VALVE POWER AMPLIFIER WITH KT88 VALVES

### K8010

Plenty of power, deep bass and low distortion, yet still affordable. This single-channel valve amp delivers up to 65W of pure class A power thanks to its KT88 output pentodes. The attractive chrome-plated enclosure matches the state-of-the-art design. It comes complete with chrome-plated valve base cover rings and heavy-duty cabinet feet.



- 4 quality KT88 valves in push-pull combination
- gold-plated heavy-duty speaker and RCA connectors
- easy bias adjustment with LED readout
- standby mode stretches valve life
- soft-start circuit prevents mains fuse tripping at power-up
- no-compromise quality components
- custom made oversized toroid output and power transformers
- one single PCB ensures smooth assembly and wiring
- removable cabinet bottom for easy servicing



- valves: 4 x KT88, 1 x ECC81, 1 x ECC82
- output power: 65Wrms class A in 4 or 8 ohm
- bandwidth: 8Hz to 80kHz (-3dB/1W)
- harmonic distortion: 0.1% at 1W/1kHz
- signal/noise ratio: > 110dB (A-weighted)
- input sensitivity: 1Vrms minimum (adjustable)
- supply voltage: 100, 120, 230 or 245VAC
- max. power consumption: 300VA
- dimensions: 360 x 360 x 160mm (14.2" x 14.2" x 6.3")



## PC FUNCTION GENERATOR 0 - 1MHz

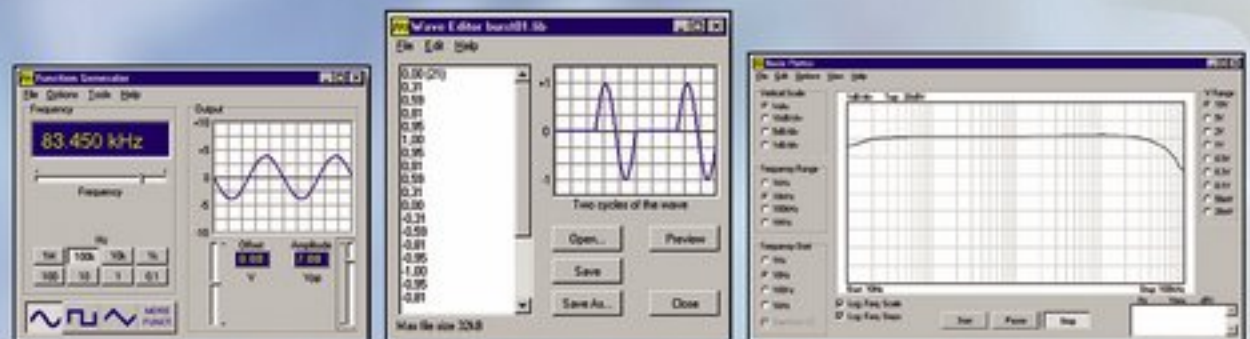
**K8016**

Frequency range: from 0.01Hz to 1MHz. Crystal-based stability. Optically isolated from the PC. Low sinewave distortion. TTL level synchronisation output. Stores up to 32K of waveform points. Standard waveforms: sine, square and triangle predefined library waveforms included: noise, sweep, ... Includes Windows™ '95/'98/NT/2000/XP integrated software for the function generator and Velleman PC oscilloscopes. You can create your own waveforms with the integrated signal wave editor. Can be chained with Velleman PC oscilloscopes to the same PC printer port (LPT1, 2 or 3). Extended bode plot possibility, used with PC scope PCS500 / K8031 / PCS100. Function generator screen with signal preview. Assembled version available: PCG10. Minimum system requirements: • IBM compatible PC • Windows 95, 98, ME, Win2000, XP or NT • SVGA display card (min. 800x600) • mouse • free printer port LPT1, LPT2 or LPT3 • CD Rom player.



- power supply: standard 12V DC adapter, 800mA (PS1208)
- direct digital wave synthesis (DDS), 32K wave table
- frequency setting resolution: 0.01%
- amplitude range: 100mVpp to 10Vpp @ 600ohm load
- amplitude resolution: 0.4% of full scale
- offset: from 0 to -5V or +5V max. (resolution 0.4% of full scale)
- vertical resolution: 8 bits (0.4% of full scale)
- maximum sample rate: 32MHz
- typical sine wave distortion (THD): < 0.08%
- output impedance: 50ohm
- dimensions : 235 x 165 x 47mm (9.3" x 6.5" x 1.9")

**GALVANIC ISOLATED FROM COMPUTER**



## VALVE CONTROL AMPLIFIER

**K8020**

No compromise high-end design. 4 inputs. Exclusive, high finish, solid aluminium enclosure. High quality ALPS volume potentiometer. Full valve design. Auto muting (warm up) at power on. Highly reliable reed relay input selection. Separate left and right input section. Programmable level adjustment: +6dB for each input. Regulated DC filament supply. Output mute function. Switchable monitor output (for tape, CDR, MD,...).

- input sensitivity for 0dB (0.775Vrms) out: approx. 200mV / 50Kohm
- maximum output level: 35Vpp
- output load impedance: 10K or higher
- signal to noise ratio (A-weighted ref. 0dB out): 100dB
- total harmonic distortion: < 0.04% @ 1kHz / 47K load
- gain: x2 or x4 (+ 6dB on)
- frequency response:
  - 7Hz to 150kHz (-3dB) @ x2 gain
  - 18Hz to 55kHz within 0.3dB
- channel separation: 85dB @ 0dB in
- input cross talk: < -100dB @ 0dB in
- AC power: 115Vac (100V to 120V) or 230Vac (220V to 240V)
- consumption: 16W max.
- dimensions: 290 x 165 x 68mm (11.4" x 6.5" x 2.7")
- weight (net): 2.7Kg (6lb)



## HIGH-END CONTROL AMPLIFIER

**K8021**

No compromise high-end design. 4 inputs. Exclusive, high finish, solid aluminium enclosure. High quality ALPS volume potentiometer. Audio grade selected op-amps. Capacitor-less output coupling. Highly reliable reed relay input selection. Separate left and right input section. Programmable level adjustment: +6dB for each input. Headphones output. Output mute function (except phones). Phono RIAA input section. Phono input can be configured as line input. Switchable monitor output (for tape, CDR, MD,...).



- input sensitivity for 0dB (0.775Vrms) out:
  - PHONO: 3mV / 47Kohm
  - LINE: 200mV / 50Kohm
- maximum output level: 26Vpp
- signal to noise ratio (A-weighted ref. 0dB out):
  - LINE: >105dB
  - PHONO: 83dB
- total harmonic distortion: 0.003% @1kHz
- gain: x2 or x4 (+ 6dB on)
- frequency response:
  - 4Hz to 500kHz (-3dB) @ x2 gain
  - 10Hz to 100kHz within 0.3dB
- channel separation: 90dB @ 0dB in
- input cross talk: < -100dB @ 0dB in
- headphones output: 250mW max. @ 32ohms
- AC power: 115Vac (100V to 120V) or 230Vac (220V to 240V)
- consumption: 6W max.
- dimensions: 290 x 165 x 68mm (11.4" x 6.5" x 2.7")
- weight (net): 2.2kg (4.8Lbs)

## HIGH-END MONO MOSFET POWER AMPLIFIER

**K8040**

No compromise high-end design. Ideal to place next to the speaker (short wires to the speaker). Auto-power on possibility when input signal is sensed. Auto-standby function when no input signal is sensed. Exclusive, high finish, solid aluminium enclosure. High quality D-MOS IC output stage. Total of 40.000µF power supply capacitors. Relay-less speaker DC protection. Real Clipping distortion indication. Power output level indication with backlight. Bypass output to drive bi-wired speakers using separate amplifiers. Double overheating protection with LED indication. High grade speaker and input connections. Overload protection.

- **INPUT**
  - input sensitivity for maximum output: 0dBm (= 0.775Vrms)
  - input impedance: 15Kohm
  - minimum auto switch on voltage: 5mVrms
- **OUTPUT:**
  - maximum RMS output power 4ohm: 90W
  - maximum RMS output power 8ohm: 70W
  - dynamic RMS output power in 4ohm: 125W
  - minimum load impedance: 4 ohm
  - damping factor (ref. 8ohm 100Hz): > 1000
- **AUDIO:**
  - signal-to-noise ratio (A-weighted ref. max. out): > 105dB
  - total harmonic distortion: 0.003% @ 1kHz ref 1W
  - frequency response: 9Hz to 120kHz (-3dB) in 50W
  - AC power: 115Vac (110V to 120V) or 230Vac (220V to 240V)
  - consumption: 100W max.
- dimensions: 290 x 165 x 68mm (11.4" x 6.5" x 2.7")
- weight (net): 3.4kg (7.5Lbs)

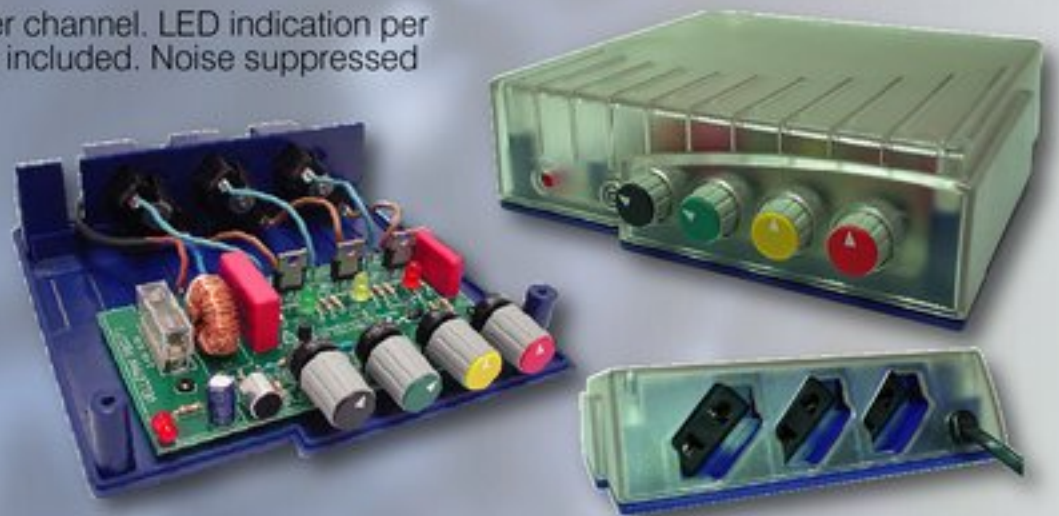


## 3-CHANNEL SOUND LIGHT WITH MICROPHONE

■■■■■□□□ **K8017**

Low, mid and high channels. Sensitivity adjustment per channel. LED indication per channel. Attractive translucent enclosure. Microphone included. Noise suppressed according to EN55015.

- operating voltages: 110-125 or 220-240Vac (50/60Hz)
- max. load: 200W per channel (100W @ 110-125Vac)
- only suited for incandescent light bulbs
- dimensions: 155 x 45 x 160mm (6.1" x 1.8" x 6.3")



## PASSIVE PREAMP WITH RF REMOTE CONTROLLER

■■■■■□□□ **K8022**

Two stereo level RCA inputs. One stereo RCA output to power amp. Motor controlled volume control. RF remote control for all functions. The remote does not need to 'see' the receiver. Self-learning code. Range: up to 15m (50ft) depending on environment. Manual operation possible. Gold plated RCA connectors. Relay controlled input selection. Totally passive.

### PREAMP:

- inputs: 2 (line level)
- output: 1 (line level)
- input impedance: 5Kohm
- output impedance: < 2.5Kohm
- volume control speed: 15s typ. (0 to max. volume)
- power supply: 12VDC / 300mA
- recommended adapter: PS1205
- dimensions: 235 x 165 x 47mm (9.3" x 6.5" x 1.9")

### REMOTE CONTROL:

- 433MHz operation
- approved design (report BLC/96-0452 according to I-ETS 300 220)
- key chain-style
- battery (not included): 12V type V23GA, GP23GAC, ...
- dimensions: 39 x 15 x 57mm (1.5" x 0.6" x 2.3")

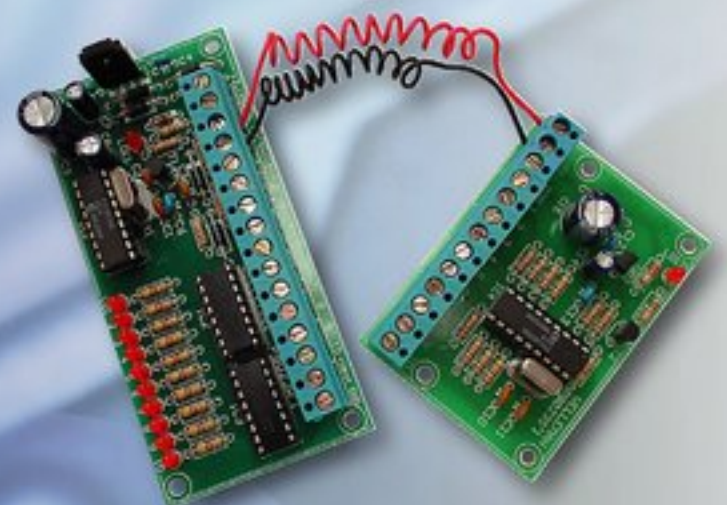


## 10-CHANNEL, 2-WIRE REMOTE CONTROL

■■■■■□□□ **K8023**

This kit allows you to control up to 10 devices using only 2 wires at a long distance. Microprocessor controlled. Inputs can be push-buttons, switches or open collector outputs 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. Can be used with our kits : K8000, K8006,... Can be connected to our standard relay card : K6714 or K6714-16.

- 10 open collector outputs: 50V / 100mA
- tested to a distance of up to 50m (55 yards) between control- and receiver section
- operating voltage: single 12-15V AC or DC, 300mA
- dimensions:
  - control pcb: 70 x 50 x 16mm (2.7" x 2.0" x 0.6")
  - receiver pcb: 103 x 50 x 24mm (4.0" x 2.0" x 1.0")
- recommended adapter: PS1205









## 4 CHANNEL RUNNING LIGHT

■■■■■□□□ **K8032**

The running light kit is the perfect addition to your existing system if you are looking to create the kind of effects used in a disco. The speed of this kit can be adjusted manually. All the outputs are equipped with a LED indication. Also exists as module: VM104.

- suppressed according to EN55015
- adjustable speed for charge switching
- LED indication
- AC power: 110 to 240VAC
- max. load per channel: 450W (240VAC) / 230W (115VAC)
- speed adjustable between: 0.2 and 3Hz
- dimensions: 100 x 83 x 36mm (3.9" x 3.2" x 1.4")



## POWER BLINKER

■■■■■□□□ **K8033**

This blinking module was designed for the activation and deactivation of a load (e.g. lighting) in order to obtain a blinking effect. The ON and the OFF duration can be adjusted separately. The blinking module is suited for both resistive and slightly inductive loads. This blinking module is ideally suited for steering e.g. disco lights, safety signs, light bulbs, ferromagnetic transformers for halogen lighting, etc ... Also exists as module: VM103.

- noise suppressed according to EN55015
- adjustable speed
- led indication
- AC power: 110 to 240VAC
- max. load: 500W (240VAC) / 250W (115VAC)
- ON-time adjustable between: 50ms and 2.5s
- OFF-time adjustable between: 0.5s and 15s
- dimensions: 100 x 82 x 36mm (3.9" x 3.2" x 1.4")



## AC POWER SLAVE

■■■■■□□□□ **K8034**

The purpose of this kit is to activate and deactivate several electrical appliances simultaneously. By operating one single switch you can not only activate e.g. your pre-amplifier but also your power amplifier, CD or DVD player, etc. You can even operate a fan and a lamp simultaneously. Detects small resistive and inductive loads. Adjustable sensitivity. Protected against current variations in master load. Relay contacts with inductive kick protection. Power indication. Also exists as module: VM105.

- Master + Slave (powered by module):
  - AC power: 115 or 230 VAC
  - max. load: 2A (500W / 230VAC - 250W / 115VAC)
- Slave only (powered externally):
  - AC power: 115 or 230 VAC
  - max. load: 5A (1100W / 230VAC - 550W / 115VAC)
  - minimal detectable LOAD: 5W
- dimensions: 106 x 101 x 45mm (4.2" x 4.0" x 1.8")
- weight (net): 187g (0.42Lbs)



## MULTIFUNCTIONAL UP/DOWN COUNTER

■■■■■□□□□ **K8035**

Very practical for counting people or parts, scorekeeping, ... Counts up or down. Count input through on-board push buttons or by external pulses. Display modes: normal or time (hh:mm and mm:ss). 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 (20cm wire). Also exists as module: VM107

- counter input voltage: 3...12Vdc (normal dry contact also possible)
- EQUAL output: 5Vdc / max. 50mA
- max. counting speed: 200 / sec. (2 / sec. with long debounce delay)
- max. count: 4 digits (9999 / 23h59m / 59m59s)
- power supply: 9 - 12Vdc or transformer 2 x 9Vac / 300mA, type : 209005
- power consumption: 150mA max.
- dimensions: 125 x 75mm (4.9" x 3.0")



Optional bezel enclosure: B8035.

## VIDEO SIGNAL CLEANER

■ ■ ■ ■ ■ □ □ K8036

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 in- and output (it is impossible to use S-video and composite video signals simultaneously). LED indication when distorted video signal detected. For PAL / NTSC video. Warning: • only use the K8036 to back up original video material of which you are the rightful owner (DVD, VHS, VCD, ...) • check copyright information of the original material. Also exists as module: VM106.

- power supply: 9Vdc / 100mA min. (adapter required)
- dimensions: 100 x 84mm (4.0" x 3.3")
- recommended adapter: PS905



## POWER DIMMER, PUSH-BUTTON CONTROLLED (1KW@230V)

■ ■ ■ ■ ■ □ K8038

Powerful high-quality dimmer, suitable for incandescent lamps, mains voltage halogen lighting and low voltage halogen lighting in combination with a conventional (wire wound) transformer. Easy push-button operation for dimming of light sources. Phase control can be disabled. Non-volatile memory for last set light intensity. Lots of safety features to make lamps last as long as possible, such as "softstart" and automatic turn-off after 12h or after 20min at too low intensity. Transformer protection in case of defective light sources. LED status indication.

- suppression of radio & TV interference according to EN55015
- operating voltages: 110-125V or 220-240V AC (50/60Hz)
- max. load: 1000W/230V or 500W/115V (5A)
- max. phase shift with inductive load: 30°
- dimming speed: ± 5 sec.
- PCB dimensions: 90 x 75 x 40mm (3.5" x 2.9" x 1.6")
- ambient temperature: 10°C to 40°C



## BUS DIMMER FOR HOME MODULAR LIGHT SYSTEM

■ ■ ■ ■ ■ □ K8037

Dimmer to be used in our K8006 home light system. Suitable for incandescent lamps, mains voltage halogen lighting and low voltage halogen lighting in combination with a conventional (wire wound) transformer. Easy pushbutton operation. A brief push toggles on/off, while continued pushing engages dimming action. Non volatile memory for last set light intensity. Lots of safety features to make lamps last longer, such as "soft-start" and automatic deactivation after 12 hours or after 20 min at insufficient intensity ... Transformer protection in case of defective light sources. LED status indication. Replaces K8007.

- suppression of radio & TV interference according to EN55015
- operating voltages: 110-125V or 220-240V AC (50/60Hz)
- max. load: 350W/230V or 170W/115V
- max. phase shift with inductive load: 30°
- dimming speed: ± 5 sec.
- PCB dimensions: 65 x 57 x 25mm (2.6" x 2.3" x 1.0")



## 1 CHANNEL DMX CONTROLLED POWER DIMMER

■ ■ ■ ■ ■ □ K8039

**new**

This kit allows you to control a lamp or group of lamps through a DMX signal. The DMX protocol was developed by USITT in 1986 with the purpose of controlling dimmers, scanners, moving heads and other lighting devices with simple wiring. It is mainly being used in theatres and discos, but you can use it in any place where a central or automated lighting is needed. Use our "USB controlled DMX interface" K8062 (kit version), VM116 (built version) or any other control console compliant with the DMX-512 protocol as a controller. Suitable for resistive loads like incandescent lamps and mains voltage halogen lighting. System addressability: 512 unique addresses, selectable with DIP switch. Status LED for power and error detection. Toroidal filtering for low noise (according to EN55015). Stand alone "test" mode. Control source: DMX-512, 3 pin XLR socket included.

- load capacity: max. 1000 W @ 230V (5A) or 500W @ 115V
- power Input: 115/230 VAC
- size: 150 x 60 x 45mm / 5,9 x 2,36 x 1,77"



## FAN TIMER

### ■ ■ ■ ■ □ □ K8041

Allows single-button operation of both fan and lighting. Features automatic fan turn-off with adjustable delay for use in e.g. kitchen or bathroom. 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 stand-alone fan delay timer.

- power supply: 110 to 240Vac (50/60Hz)
- maximum load: 200W
- delay range: from 10s. to 5min.
- dimensions: 80 x 60mm (3.2" x 2.4")



## SYMMETRIC 1A POWER SUPPLY

### ■ ■ ■ ■ □ □ K8042

Low cost universal symmetric power supply. Just add a suitable transformer and a heatsink. Ideal for e.g. op-amp applications, amplifiers, ... Trimmers can be replaced by potmeters to allow continuous adjustment of output voltage. LED output indicators. Compact size.

- positive and negative output adjustable between 1.2 and 24VDC
- output current: up to 2 x 1A continuous (with suitable heatsink)
- max. input voltage: 2 x 24VAC
- very good line and load regulation
- low ripple
- short circuit protection
- thermal protection
- optional heatsink: HS4003 (for maximum 20W dissipation)
- dimensions: 78 x 52 x 24mm (3.1" x 2.0" x 0.9")



## 12V, 10-CHANNEL LIGHT EFFECT GENERATOR

### ■ ■ ■ ■ □ □ K8044

This kit has 10, 12V/400mA outputs to control cold-cathode fluorescent lamps, light bulbs, LED's and "solid state" relays, ... For use with advertisement lighting, party lights, eye-catchers, in the disco... 10 pre-programmed selectable light patterns with a push button. Number of used channels is adjustable. Adjustable speed. LED indication for every output. 12V operation possible for use in cars. The last used lighting effect is saved in non-volatile memory. Options: • adapter (90 - 260V AC input to 12V DC output/ 5.8A): PSS1255 • power supply for cold-cathode fluorescent lamps: FLPS (300mm) or FLPS1 (100mm) • cold-cathode fluorescent lamps: FL(xx) - (100 or 300mm) • "solid-state" relays for controlling large loads (lamps): VR25SS1A (1 x NO, 240V / 25A) or VR3SS1A (1 x NO, 240V / 3A)

- power supply: 12V DC
- consumption: max. 4A
- outputs: 12V DC / 400mA per channel (total : max 4A)
- dimensions: 140 x 100 x 27mm (5.5" x 3.9" x 1.1")



## PROGRAMMABLE MESSAGE BOARD WITH LCD, SERIAL INTERFACE & 8 INPUTS

### ■ ■ ■ ■ ■ ■ ■ ■ K8045

Add an LCD display to any low-tech application and make it look high-tech ! Replace up to 9 indicators or lamps by one single backlit LCD. Recall messages simply by pressing a button. Inputs accept dry contacts, open collectors and logic levels. No programming skills required! Store up to 9 sixteen-character messages in non-volatile EEPROM memory. 4 operating modes: (1): display the status of all inputs simultaneously (2): display all active inputs (3): display active input with highest priority (4): display text messages in a 'tickertape'-fashion. A default message can be displayed to signal that no inputs are active. Messages can be transferred to the K8045 from any PC or terminal. Message transfer software is available from [www.velleman.be](http://www.velleman.be). Wireless data transfer between PC/terminal and K8045 is possible with optional RX/TX433 modules. 1 on-board push button is available for an application of your choice. Options: • RF wireless link: RX433 + TX433N (see manual) • supertwist HQ display: LCD1601ASL • bezel enclosure: B8045

- inputs: 8 (24Vmax)
- display: supertwist backlit LCD with 16 characters and 1 line
- communication: RS232 serial 2400/N/8/1 no handshaking
- power supply: 9-12VDC/150mA adapter or 2x9VAC/150mA transformer
- dimensions: 124 x 73 x 30mm (4.9" x 2.9" x 1.2")



51

B8045

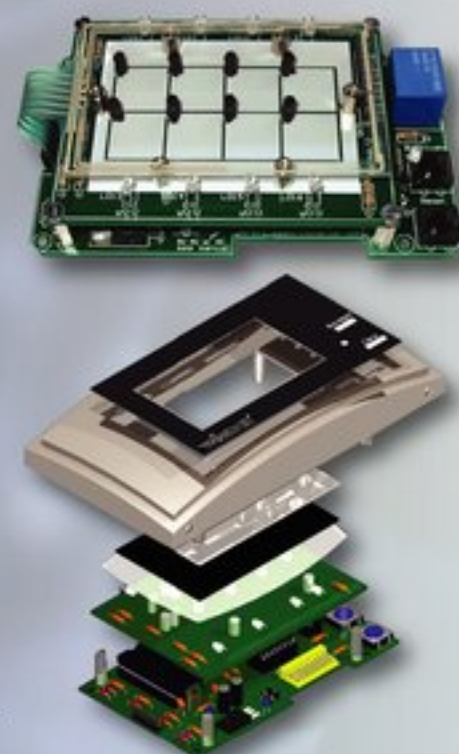


## USER-DEFINABLE 8-CHANNEL TOUCH PANEL

K8046



Ever wanted your own keyboard with your personal layout and symbols? Here is the solution: Now simply print YOUR keyboard layout on a transparent foil and make your own keyboard! The function of each key can be selected (momentary or toggle) and each key is backlit. It is even possible to simulate classic "radio keys" (only one output can be ON, just like a rotary switch). One key can be defined as a preset memory or serve as an "all clear" key. Completing the features of



this unique keyboard is a "click" sound when the keys are operated. The output can easily be connected to your own applications or to several of our kits: the K8045 LCD message board, the K6714 relay card, the K8006 light system bus unit, the K8000 computer interface, the K2633 or the K2634 power cards, the K8023 two wire remote, ... Max. 8 self-definable keys. LED status indication for each key/output. Each key can be set up as a toggle key or momentary key. Soft-touch see-through panel with 8 keys. Key layout examples are included. Backlight with dimming function. Unique key-click feedback. Optional IR receiver module: IR38DM. Optional blue backlight: L-934MBC (8 pcs required). "Design" mounting frame (bezel) is included. Easy board-to-wire connectors. 4 different functions (jumper selectable):

- 8 independent keys (toggle or momentary selectable)
- 8 radio keys (simulation of rotary switch)
- 4 radio keys and 4 independent keys
- 1 key is reserved as a memory key or an "all clear"-key

- 8 open-collector switches: max. 50V / 100mA
- board to wire connectors: 20cm wire
- dimensions (frame included): 165 x 90 x 35mm (6.5" x 3.5" x 1.4") (depth)
- keyboard operating force: 40g (with R0.8mm test point)
- keyboard life: 1000000 operations with R3mm rubber
- power supply: 9VAC or 12VDC / max. 250mA
- dimensions: 165 x 90 x 35mm (6.5" x 3.5" x 1.4")

## 4-CHANNEL RECORDER / LOGGER

K8047

Record DC signals or slow-moving signals over very long periods. The measurements are automatically stored on your hard disk for further processing. No power supply is necessary thanks to the USB connection and installation is easy and straightforward. Signals are instantly displayed on the PC screen using an analogue or DVM display. USB cable included. PC-LAB2000 Software included. Comes with enclosure.

### HARDWARE

- USB connected and powered
- four DC coupled input channels
- input resistance: 1Mohm
- maximum samples per second: 100
- four input ranges: 3V / 6V / 15V and 30V
- sensitivity: 10mV
- accuracy:  $\pm 3\%$  of full scale
- maximum input: 30Vdc
- power and recording/diagnostic LED

### SOFTWARE

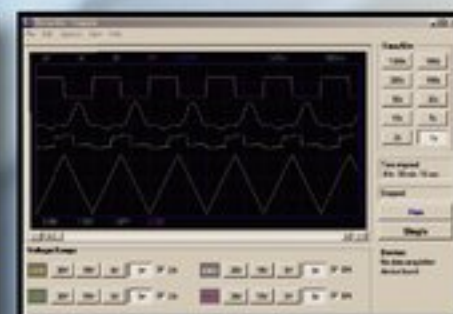
- analogue trace or digital DVM readout
- 4 channels record simultaneously
- minimum / maximum sample hold function for DVM
- from 1 sec to 1000 sec per division
- storage and recall of screens (full colour) or data
- automatic recording option for long recordings
- on screen markers for time and voltage
- DLL included for your own developments

### SYSTEM REQUIREMENTS

- PC, running Win98SE or higher (does not work on WinNT or Win95)
- free USB port
- mouse
- CD-rom player



**USB**



## PIC PROGRAMMER & EXPERIMENT BOARD

**K8048**

Suitable for programming Microchip® FLASH PIC™ microcontrollers. Supports 4 different 300 mil. PICs: 8p, 14p, 18p and 28p. Test buttons and LED indicators to carry out educational experiments, such as the enclosed programming examples. Easy connection to a PC through the serial port. Enclosed is a Flash Microcontroller (PIC16F627) that can be reprogrammed up to 1000 times for experimenting at will. Software to compile and program your source code is included. Minimum system requirements: • IBM Compatible PC, Pentium or better • Windows™ 95/98/ME/NT/2000/XP • CDROM • free serial RS232 port • cable not included: e.g. CW014. Also available in mounted version: VM111.

- power supply: 12 or 15V DC, min. 300mA, non-regulated adapter (PS1205/PS1208/PS1508 (230Vac) ; PS1208USA (115Vac))
- dimensions: 145 x 100mm (5.75" x 4")
- Rev 2.5 supports the following microcontrollers:
  - PIC12F629, PIC12F675
  - PIC16C83, PIC16CR83, PIC16F83, PIC16C84, PIC16CR84, PIC16F84, PIC16F84A
  - PIC16F870, PIC16F871, PIC16F872, PIC16F873, PIC16F873A, PIC16F874, PIC16F874A, PIC16F876, PIC16F876A, PIC16F877(A) (ICSP only)
  - PIC16F627, PIC16F627A, PIC16F628, PIC16F628A, PIC16F648A
  - PIC16F630, PIC16F676
  - PIC16F818, PIC16F819



## 15-CHANNEL IR TRANSMITTER

**K8049**

Compatible with: K6711, K6712, K6713, K8046, K8050, K4100, K4500, MK161, MK163, MK164. 4 addresses allow the use of multiple receivers in one room.

- power supply: 3 x 1.5V AAA batteries
- up to 15 channels can be operated
- rubber keypad
- LED function indication
- compatible with most Velleman IR receiver kits

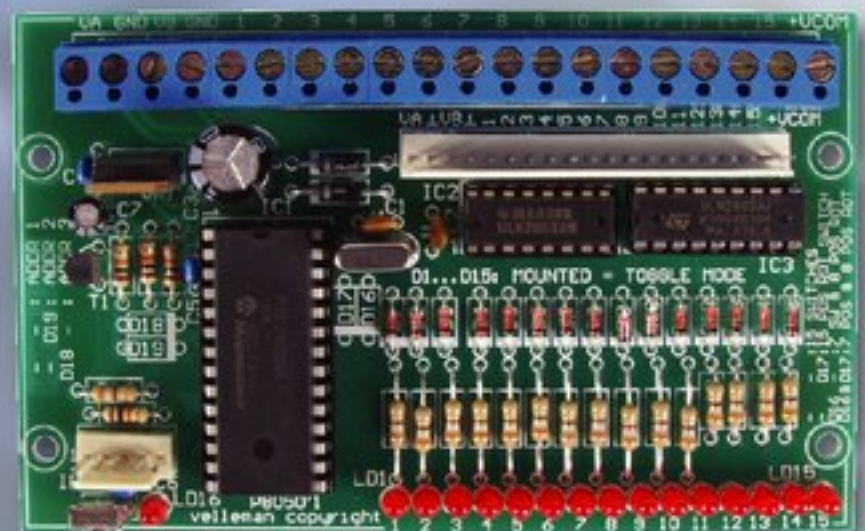


## 15-CHANNEL INFRARED RECEIVER

**K8050**

Works together with K6710, K8049, K8051, K8055, K8056, K6714, K6714-16, K2633, ... 15 open collector contacts: max. 50V/50mA. LED indication for each output. Multiple IR sensors possible (type : IR38DM). Transmitter - receiver range: up to 20m. 4 different modes: • 15 independent outputs • 15 rotary outputs • 7 independent outputs & 8 rotary outputs • 7 rotary outputs & 8 rotary outputs (independent from each other). 3 addresses allow the use of multiple receivers in one room. Optional board-to-wire connectors-female: BTWF5 & BTWF20.

- power supply: 8 ~ 14VDC or 2x6 ~ 2x12VAC (150mA)
- current consumption:
  - all outputs off: 10mA
  - all outputs on: 150mA
- dimensions: 71 x 114mm (2.8" x 4.5")



## USB EXPERIMENT INTERFACE BOARD

### ■ ■ ■ ■ ■ □ K8055

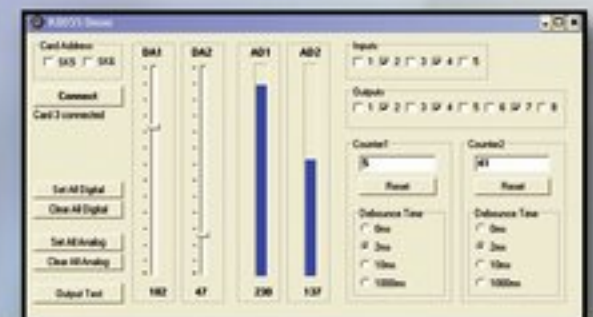
The K8055 interface board has 5 digital input channels and 8 digital output channels. In addition, there are two analogue inputs and two analogue outputs with 8 bit resolution. The number of inputs/outputs can be further expanded by connecting more (up to a maximum of four) cards to the PC's USB connectors. All communication routines are contained in a Dynamic Link Library (DLL). You may write custom Windows (98SE, 2000, Me, XP) applications in Delphi, Visual Basic, C++ Builder or any other 32-bit Windows application development tool that supports calls to a DLL. Also available in mounted version: VM110.

#### DIAGNOSTIC / TEST SOFTWARE

- separate output / input test
- clear all / set all function
- counter function on inputs 1 and 2 with adjustable debounce (max 2kHz depends on total I/O load)
- analogue output set sliders
- analogue input bar-graph indication

#### MINIMUM SYSTEM REQUIREMENTS

- Pentium class CPU
- USB1.0 or higher connection
- Windows 98SE or higher (Win NT excluded)
- CD ROM player and mouse
- 5 digital inputs (0= ground, 1= open) (on board test buttons provided)
- 2 analogue inputs with attenuation and amplification option (internal test +5V provided)
- 8 digital open collector output switches (max. 50V/100mA) (on board LED indication)
- 2 analogue outputs:
  - 0 to 5V, output resistance 1K5
  - PWM 0 to 100% open collector outputs max 100mA / 40V (on board LED indication)
- general conversion time: 20ms per command
- power supply through USB: approx. 70mA
- diagnostic software with DLL included
- dimensions: 145 x 88 x 20mm (5.7" x 3.5" x 0.8")



## 8-CHANNEL RELAY CARD

### ■ ■ ■ ■ ■ □ K8056

This relay card can be used in several ways : stand alone card, addressed by switches or open collector outputs or remote controlled through RS232. In option remote controlled using RF (radio frequency) signals (K8058 remote control + RX433 module). Since the card can be addressed using RS232 commands, you may write custom applications in any programming language on any platform. Test software can be downloaded from our web site.

#### DIAGNOSTIC / TEST SOFTWARE:

- separate relay on/off test with moment or toggle function
- clear all / set all relays function
- address selection: up to 255 cards can be selected
- emergency stop for all cards

#### MINIMUM SYSTEM FOR TEST SOFTWARE:

- Pentium class CPU
- Windows 95 or higher
- mouse and free RS232 port
- 8 high quality relay contacts: 5A/230Vac max.
- relay outputs are transient suppressed using VDRs
- LED confirmation on each relay contact
- 8 drive inputs to use with open collectors or regular switches
- RS232 input to drive the card with computer or terminal: baud rate: 2400, no parity, 8 data bits, 1 stop bit, high or low impedance selection (10K or 1K)
- optional RF driving possibility using RX433 type module (not simultaneous with RS232) together with K8058 eight channel RF remote control
- power output: unregulated 12Vdc / 200mA
- power supply: 12Vac / 500mA (including 12V output)
- diagnostic software downloadable from our site
- dimensions: 160 x 107 x 30mm (6.3" x 4.2" x 1.2")



## 15-CHANNEL IR REMOTE STICK

■■■■■□□ K8051

The K8051 15-channel IR Remote Stick features a sleek designer enclosure with just 2 buttons, yet it provides access to a stunning 45 channels (3 addresses with 15 channels each). The built-in 'all clear'-function allows the user to turn-off all channels of the current address at the same time. Channel and address selection is straightforward and easy. Even in total darkness you can select the correct channel and operate the remote. Compatible with most current and upcoming Velleman IR kits: K6711 15-channel IR receiver, K6712 IR dimmer, K6713 1-channel IR receiver, K8046 8-channel touch screen, K8050 addressable 15-channel IR receiver. Single button channel selection and operation. Code is recognised by most learning remotes.

- range: up to 20m (K8050 / indoors)
- power supply: 2 x 1.5V AAA batteries (not incl.)
- low power consumption
- dimensions: 160 x 27 x 23mm (6.3" x 1.1" x 0.9")



## 2-CHANNEL RF REMOTE RECEIVER WITH RANDOM CODE

■■■■■□□ K8057

Two relay contact outputs. For use with K8059 and VM108 two channel RF code-lock transmitters. Toggle or pulse function selectable per output. Pulse function with turn off timer. Can learn a unique 32-bit code from the K8059 and VM108 transmitters. Store up to 31 transmitters. No hardware settings required, full software control. Code memory can be erased for safety purposes. LED indicators for outputs and functions. Special function in pulse mode: both outputs can be set simultaneously when the two transmitter buttons are pressed at the same time. Suitable for various control applications e.g. garage door, door to your home, lights, car...

- power supply: 9 to 12V AC or DC / 100mA max.
- relay contacts NO / NC: 3A each
- 433MHz operation
- selectable timers per output: 0.5s, 5s, 30s, 1min, 5min, 15min, 30min and 60min
- open-field range of up to 30m
- onboard antenna or external antenna
- dimensions: 100 x 82mm (3.9" x 3.2")

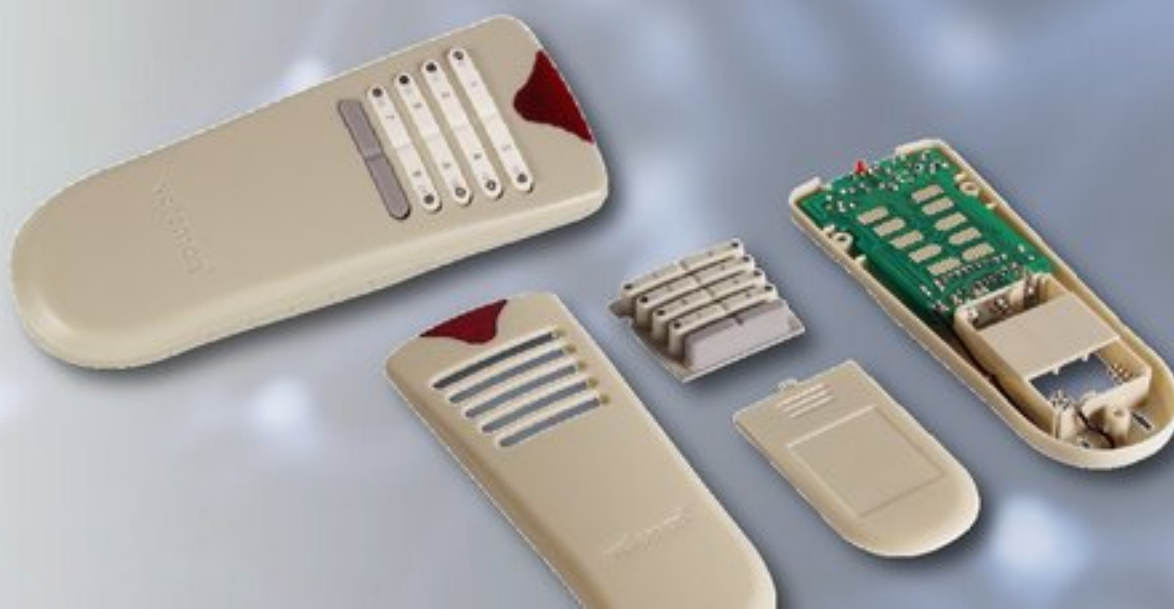


## 8-CHANNEL RF REMOTE CONTROL

■■■■■□□ K8058

Works together with the K8056 relay card. 8 addresses allow the use of multiple receivers. 'All clear'-function. Toggle or momentary mode for each key. Open-field range up to 50m. Rubber keypad.

- operate up to 8 channels
- 433MHz operation
- LED function/mode indication
- power supply: 3 AAA batteries
- dimensions: 150 x 58 x 20mm (5.9" x 2.3" x 0.8")



## 2-CHANNEL RF CODE-LOCK REMOTE TRANSMITTER

■■■■■□□ K8059

For use with the K8057/VM109 2-channel RF receivers. Generates unique 32-bit code. More than 1,000,000,000 unique codes. Code can easily be changed for safety purposes. Choose continuous or 'burst' transmission. LED indicator. Limited compatibility with K6706 - K6706A - K6706B/G ( 3 codes).

- power supply: 12V battery V23GA, GP23GA,... (not incl.)
- 433MHz operation
- open field range of up to 30m possible
- dimensions: 63 x 40 x 16mm (2.5" x 1.6" x 0.6")

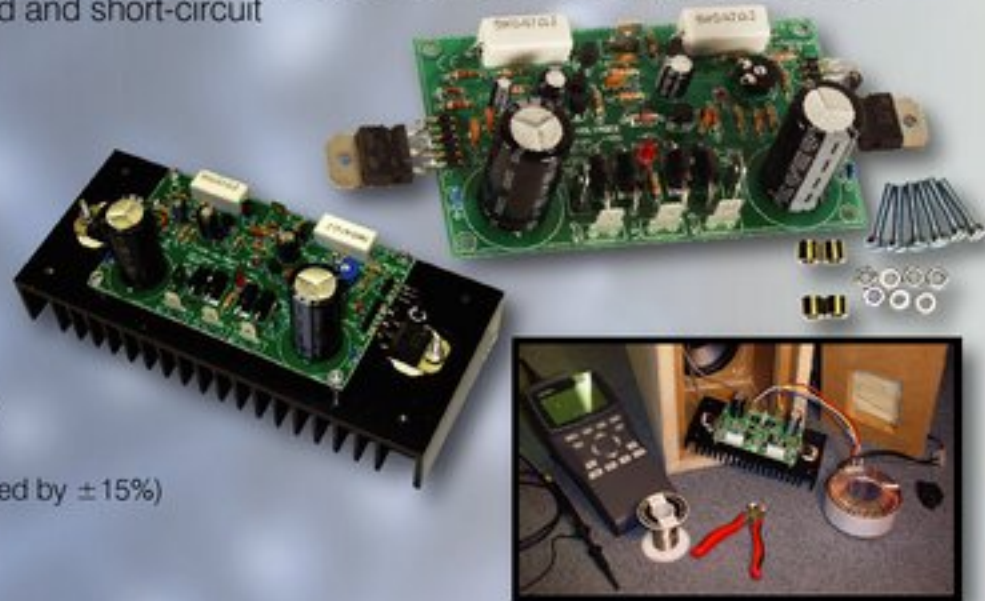


## DISCRETE POWER AMPLIFIER 200W

**K8060**

Excellent value for money. Fully discrete design using Epitaxial Darlington transistors. DC supply circuit on board with LED indication. Ideal for active speaker system or subwoofer, guitar amp, home theatre systems, instrument amp, etc. Comes complete with transistor isolators, spacers and bolts. Overload and short-circuit protection. Also available assembled : VM100.

- 200W music power @ 4 ohm load
- 100Wrms power @ 4 ohm load
- 70Wrms power @ 8 ohm load
- distortion: 0.02% @ 1KHz/10W
- damping factor: >800
- frequency response: 3Hz to 200KHz (-3dB)
- sensitivity: 0.6Vrms
- signal to noise ratio: 115dB
- power supply: 2 x 25-30Vac / 120VA
- PCB dimensions: 107x62mm (approx.)
- recommended heatsink: HSVM100 (pre-drilled) or S44/75 (not drilled)
- recommended power transformer:
  - 230VAC input, 2 x 30VAC output: 12030
  - 115 / 230VAC input, 2 x 25VAC output: TR8040 (output power reduced by  $\pm 15\%$ )



**COMING IN 2006**

## EXTENDED USB INTERFACE BOARD

**K8061**

- Practically useable universal I/O card with USB™ interface.
- **Safe, optically isolated communication between all the I/O's and your PC.**
- 8 digital input connections.
- 8 digital output connections.
- 8 analogue outputs with 8 bit resolution
- 8 analogue inputs with 10 bit resolution
- 1 PWM output with 10 bit resolution
- Test software and examples in Visual Basic, Delphi and Borland C++ Builder are included on CDROM.



**USB**

## USB CONTROLLED DMX INTERFACE

**K8062**

This unit can control DMX fixtures using a PC and USB interface. Test software and "DMX Light Player" software is included, a DLL is provided to write your own software. Furthermore there is a stand-alone test function that outputs all 512 channels at a time, with adjustable levels. Kit includes: • nice enclosure • USB cable • CD with: test software, DLL for own developments, free • DMX light player

- connected and powered through USB
- 512 DMX channels with 256 levels each
- 3 pin XLR-DMX output connector
- Windows 98SE or higher compatible
- DLL included to write your own software
- optional 9V battery needed for stand alone test mode
- solid state - fuse protection on DMX output
- dimensions: 106 x 101 x 44.5mm (4.2" x 4.0" x 1.75")

**USB**





## 2 MODULAR DIGITS WITH SERIAL INTERFACE

### ■ ■ ■ ■ ■ □ K8063

Bright, red, jumbo-sized 7-segment displays (57mm). Complete with snap-in enclosure. Multiple units can be linked in an easy way to create larger readouts for e.g. score-keeping, timing, counting, ... Easy platform-independent control via RS232 three-wire interface. Up to 255 units can be separately addressed. Tested with distances of up to 50m between PC and displays. For USB connection use our optional PCUSB6

- power supply: 9 to 12Vdc / 120mA per display
- RS232 interface: 2400baud / 8 data bits / no parity / 1 stop bit
- dimensions: 74 x 58.5 x 32mm (2.9" x 2.3" x 1.3")



## DC CONTROLLED DIMMER

### ■ ■ ■ ■ ■ □ K8064

Simple brightness adjustment by means of a DC voltage. Optically isolated adjustment input. Pre-set adjustment for full brightness. Suitable for incandescent lamps, mains voltage halogen lighting and low voltage halogen lighting in combination with a conventional transformer. "Soft start" feature to ensure lamp longevity. Transformer protection in case of defective light sources. LED status indication. Compatible with our computer interface cards: K8000, K8055.



- adjustment voltage: 0 to 12Vdc max.
- max. adjustment current: 2.25mA at adjustment voltage of 12V
- suppression of radio & TV interference according to EN55015
- operating voltage: 110-125V or 230-240V AC (50/60Hz)
- max. load: 750W/230V or 375W/110V, 0-98% adjustable
- max. phase shift with inductive load: 30°
- PCB dimensions: 90 x 75 x 40mm (3.5" x 3.0" x 1.6")

## POCKET AUDIO GENERATOR

### ■ ■ ■ ■ ■ □ K8065

Great little gadget for service, repair, testing, education, etc... Microprocessor technology. Digital waveform generation

- sine wave: 50Hz, 100Hz, 1KHz, 10KHz, 20KHz
- burst: 50Hz, 100Hz, 1KHz
- burst mode: 20ms ON, 500ms OFF
- noise: 32-bit digital pink noise
- output level (10Kohm): 0 to 775mV (0dB)
- outputs: 2 x RCA (cinch)
- power supply: 2 x CR2016 or CR2025 battery (excl.)
- dimensions: 86 x 50 x 25mm (3.4" x 2.0" x 1.0")



## UNIVERSAL TEMPERATURE SENSOR

### ■ ■ ■ ■ ■ □ □ K8067

Applications : measure indoor and outdoor temperatures, control heating and/or cooling of rooms, equipment, etc... Monitor temperatures in processes, put a temperature readout on your website, check your pools temperature, ...

- range: -20° ~ +70°C
- output: 0 ~ 20mA current loop
- output voltage compliance: 10V
- accuracy: 2° full range
- one single adjustment
- 3-wire system: GND, +V and OUT
- power supply: 12VDC for 0 ~ 5V OUT / 15VDC for 0 ~ 10V OUT
- current consumption: 30mA max.
- dimensions: 55 x 35 x 15mm (2.2" x 1.4" x 0.6")





# MINIKITS

## ELECTRONIC CHRISTMAS TREE

■ ■ ■ ■ ■ ■ ■ ■ **MK100**

Christmas has never been this cosy ! 16 blinking LEDs.

- also available in mounted version: MMK100
- very low power consumption: max. 4mA
- power supply: 9V battery (not incl.)
- dimensions: 60 x 100 x 25mm (2.4" x 4.0" x 1.0")

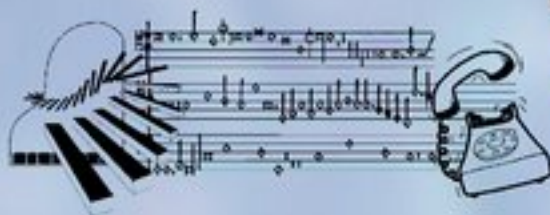


## SOUND-TO-LIGHT UNIT

■ ■ ■ ■ ■ ■ ■ ■ **MK103**

Four high-intensity LEDs light up and react simultaneously to every sound. For different funny and practical applications e.g. sound indicator, simple sound-to-light unit for music. The unit can also be used to indicate when the doorbell or the telephone is ringing, which is particularly interesting for the hearing-impaired. Adjustable sensitivity with potentiometer. Built-in microphone.

- consumption: 0.5mA min. / 12mA max.
- power supply: 9V battery (not incl.)
- dimensions: 40 x 55 x 35mm (1.6" x 2.2" x 1.4")

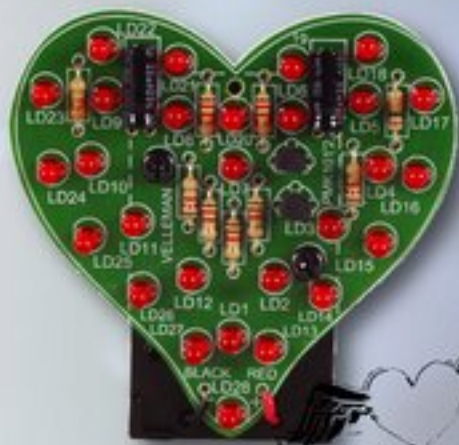


## FLASHING LED SWEETHEART

■ ■ ■ ■ ■ ■ ■ ■ **MK101**

Show your sweetheart in an original way that your heart still beats for him or her. 28 LEDs form 2 blinking hearts.

- consumption: ca. 8mA
- power supply: 9V battery (not incl.)
- dimensions: 60 x 60 x 30mm (2.4" x 2.4" x 1.2")



## ELECTRONIC CRICKET

■ ■ ■ ■ ■ ■ ■ ■ **MK104**

Can be used for recreational purposes or to simulate a hot summer night. Automatically comes on when darkness falls. Cricket repetition (time between two crickets), effect and tone are adjustable. Adjustable light sensitivity.

- consumption: ± 5mA
- power supply: 9V battery (not incl.)
- dimensions: 60 x 10 x 25mm (2.4" x 0.4" x 1.0")

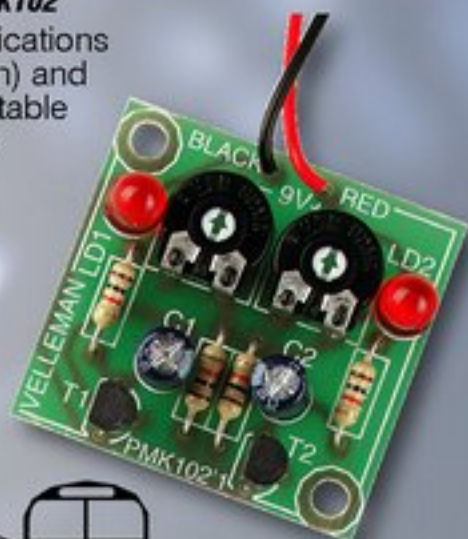


## FLASHING LEDS

■ ■ ■ ■ ■ ■ ■ ■ **MK102**

Suited for different applications (e.g. model construction) and also educational. Adjustable flashing speed with two potentiometers.

- consumption: ca. 8mA
- power supply: 9V battery (not incl.)
- dimensions: 30 x 35 x 15mm (1.2" x 1.4" x 0.6")

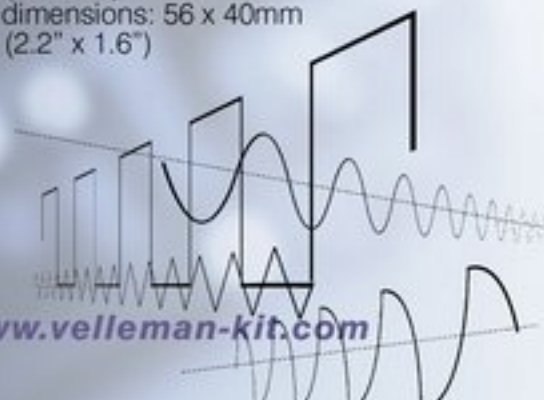


## SIGNAL GENERATOR

■ ■ ■ ■ ■ ■ ■ ■ **MK105**

Signal output: sine wave, triangle, square wave and integrator (selectable through jumper). Signal frequency: about 1kHz (fixed). Output level: adjustable from 0 to 100mVrms (LEVEL potentiometer).

- power supply: 9V battery (not incl.)
- dimensions: 56 x 40mm (2.2" x 1.6")



## METRONOME

■ ■ ■ ■ ■ ■ ■ ■ ■ ■ **MK106**

Speaker included. LED beat indication. Adjustable volume and beats/minute with potentiometers. On/off switch on board.

- power supply: 9V battery (not incl.)
- dimensions: 60 x 43mm (2.4" x 1.7")



## ELECTRONIC DICE

■ ■ ■ ■ ■ ■ ■ ■ ■ ■ **MK109**

Electronic dice with LED indication. Slowly rolls to a stop when the push button is released.

- power supply: 9V battery (not incl.)
- dimensions: 42 x 60mm (1.7" x 2.4")



## LED RUNNING LIGHT

■ ■ ■ ■ ■ ■ ■ ■ ■ ■ **MK107**

8 LEDs. Different LED running effects are selectable (PROG push button). Adjustable effect speed (SPEED potentiometer). Push button for power stand-by (OFF push button).

- power supply: 9V battery (not incl.)
- dimensions: 95 x 40mm (3.5" x 1.6")

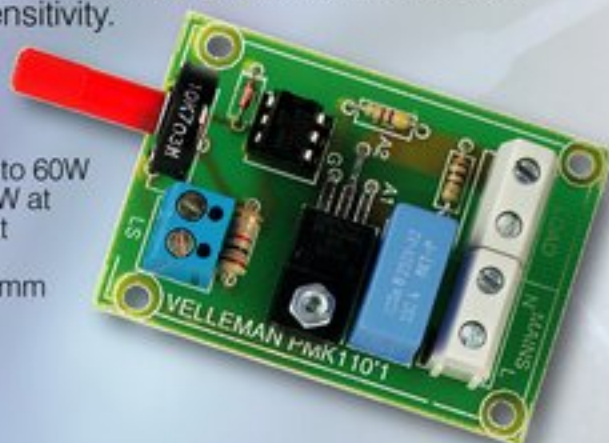


## SIMPLE ONE CHANNEL LIGHT ORGAN

■ ■ ■ ■ ■ ■ ■ ■ ■ ■ **MK110**

With loudspeaker input. Modulates a lamp according to the music signal at the input. Optically isolated loudspeaker input. Adjustable sensitivity.

- input sensitivity: 2W to 60W
- maximum load: 120W at 120VAC and 230W at 230VAC
- dimensions: 60 x 41mm (2.4" x 1.6")



## WATER ALARM

■ ■ ■ ■ ■ ■ ■ ■ ■ ■ **MK108**

Gives alarm sound when water is detected. Incorporated alarm buzzer. Water sensor can be placed at a distance by cutting the board and using wires to connect the sensor.

- power supply: 9V battery (not incl.)
- dimensions: 45 x 70mm (1.8" x 2.8")



## INTERVAL TIMER

■ ■ ■ ■ ■ ■ ■ ■ ■ ■ **MK111**

For intermittent operation of circuits and equipment. Blinking light, video/photo single frame shooting, slide projector control, miniature models.

- output relay with dry switch-over contact: 3A/24V
- pulse time adjustable: between 0.5 and 5s
- pause time adjustable: between 2.5 and 60s
- power supply: 12Vdc / 100mA
- dimensions: 40 x 85mm (1.6" x 3.4")



## BRAIN GAME

■ ■ ■ ■ ■ ■ MK112

Just 4 LEDs and 4 push buttons provide hours of fun. The object of the game is to repeat a randomly generated pattern. The pattern is played both visually and audible or visually only (selectable). It features 4 difficulty levels, which can be selected at start-up. The replay speed gradually increases during the game, to make it even more challenging. Low power consumption. Microprocessor-controlled. Auto power off.



- power supply: 3 x 1.5V AA batteries (not incl.)
- dimensions: 50 x 65mm (2.0" x 2.6")

## POCKET VU METER

■ ■ ■ ■ ■ ■ MK115

Surprise your friends in the disco. 5 red LEDs. Incorporated microphone. Adjustable sensitivity.

- power supply: 3V type CR2032 battery (not incl.)



## SIREN SOUND GENERATOR

■ ■ ■ ■ ■ ■ MK113

Generates 4 different sounds: police siren, fire brigade, emergency vehicle and laser gun. RV1 adjusts sound pitch. On/off switch and PCB speaker included.



- power supply: 9V battery (not incl.)
- dimensions: 60 x 40mm (2.4" x 1.6")

## RIDING SANTA

■ ■ ■ ■ ■ ■ MK116

Animated Xmas gadget with 126 multicoloured LEDs. No need to remove battery when using external supply. 12V operation possible for use in cars, lorries, trucks. With on/off switch.

- also available in mounted version: MMK116
- power supply: 9 to 12VDC or 9V alkaline battery (not incl.)
- dimensions: 80 x 145mm (3.2" x 5.7")
- recommended adapter: PS905



## LOW VOLTAGE LIGHT ORGAN

■ ■ ■ ■ ■ ■ MK114

Operates at a safe voltage level. Makes lamps flash to the rhythm of the music. Usable for halogen bulbs. Optically isolated speaker input. Adjustable sensitivity. Can be used in the car if the lamps are isolated from the chassis.

- input sensitivity: 2W to 60W
- maximum load: 50W / 12V or 100W / 24V
- power supply: 12V to 24V DC or AC
- dimensions: 45 x 88mm (1.8" x 3.5")



## DE LUXE XMAS TREE

■ ■ ■ ■ ■ ■ MK117

Beautiful tree consisting of 134 LEDs. 18 randomly blinking candles. No need to remove battery when using external supply. 12V operation possible for use in cars, vans, trucks. On/off switch included.

- also available in mounted version: MMK117
- power supply: 9 to 12VDC or 9V alkaline battery (not incl.)
- recommended adapter: PS905
- dimensions: 143 x 81mm (5.6" x 3.2")



## FM RADIO

■ ■ ■ ■ ■ **MK118**

Double fun: building and listening! Easy to assemble: no coils to wind. One single adjustment. Pre-assembled and tested FM front end. Receives the complete FM band: 88-108 MHz. With ON/OFF switch, volume control and LED indicator.

- power supply: 12VDC / 100mA (adapter jack provided)
- dimensions: 125 x 85mm (4.8" x 3.3")

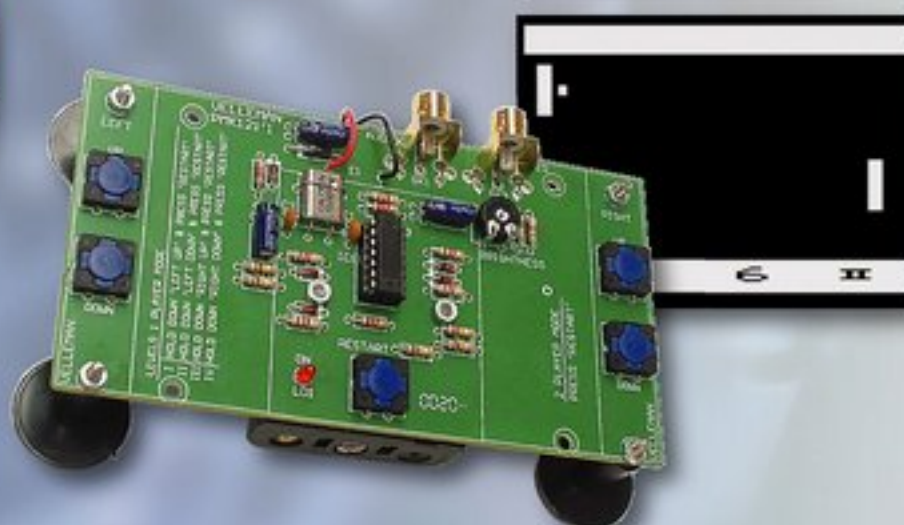


## CLASSIC TV GAME

■ ■ ■ ■ ■ **MK121PAL**

One player mode : four difficulty levels, hold one of the move buttons then press RESTART to select a level. Two player mode : press RESTART. Press both move buttons to "smash" or to start your serve. Only the server can score points.

- video and audio output
- adjustable brightness
- auto power off
- power supply: 3 x 1.5V AA batteries (not incl.)
- dimensions: 75 x 140mm (2.9" x 5.5")



## ROULETTE

■ ■ ■ ■ ■ **MK119**



37 LEDs. Spinning sound. 'Winner'-tune for each colour. Spins LEDs between games. Push-button operation. Microprocessor technology.

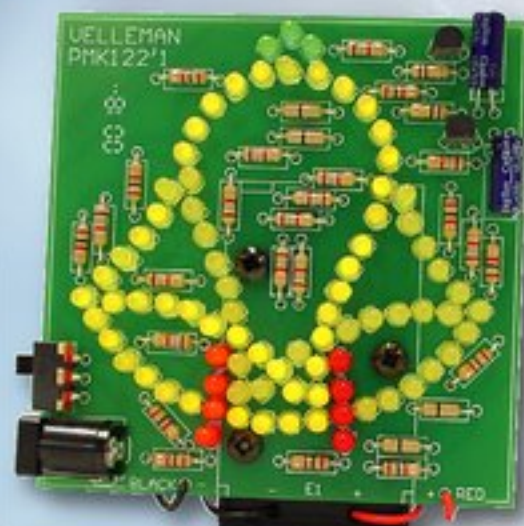
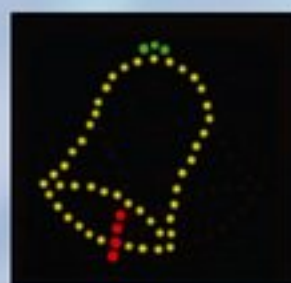
- auto power-off
- low power consumption
- power supply: 3 x AA battery operation (not incl.)
- dimensions: Ø91 x 33mm (Ø3.6" x 1.3")

## ANIMATED BELL WITH 83 LEDS

■ ■ ■ ■ ■ **MK122**

No need to remove battery when using external supply. 12V operation possible for use in cars, lorries, trucks. On/off switch included.

- power supply: 9 to 12VDC adapter or 9V alkaline battery (not incl.)
- recommended adapter: PS1203

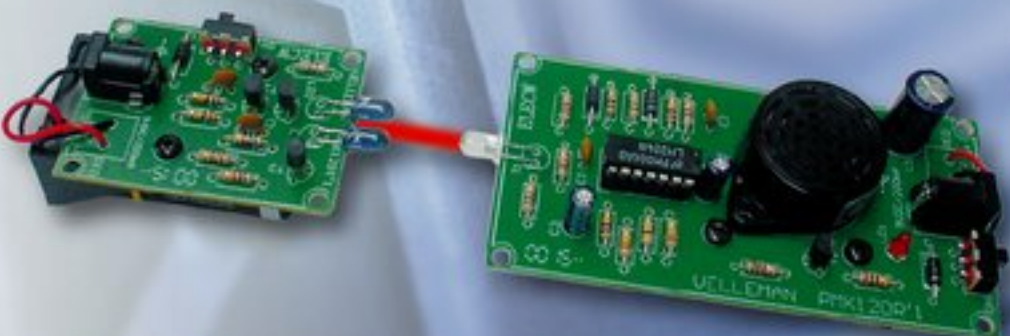


## LIGHT BARRIER

■ ■ ■ ■ ■ **MK120**

Applications : announce visitors, warn against burglars, set boundaries, science projects,...

- audible (85dB) and visible (LED) alert
- range: 1 to 4m (3.3ft to 13ft)
- on/off switch provided
- power supply:
  - transmitter: 9VDC / 50mA max.
  - receiver: 9VDC / 20mA max.
- 9V battery holder and adapter jack included
- dimensions:
  - transmitter: 55 x 40mm (2.2" x 1.6")
  - receiver: 100 x 50mm (3.9" x 2.0")
- not recommended for outdoor use



## ROLLING CLOCK

■ ■ ■ ■ ■ **MK123**

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. Time display in 12h-mode (24h-mode when setting clock). Fine-tune the clock with CV1.

- power supply: 9-12Vdc adapter or car battery
- current consumption: 20mA max.
- backup battery: 9V block type 6LR61 / 6F22
- dimensions: 46/89 x 67mm (1.8"/3.5" x 2.6")



## ROLLING MESSAGE

■ ■ ■ □ □ □ MK124

Create your own moving message. Graphic display with 35 LEDs. Max. 16 characters. Adjustable scrolling speed. Press "SET" to change a particular character. Press the up or down-key to select a character and end with the "<"-sign. Display standby function: press "Stby" (press RUN to restart).

- power supply: 9-12VDC adapter or car battery
- current consumption: 20mA max. / 4mA standby
- backup battery: 9V block type 6LR61/ 6F22
- dimensions: 46/89 x 67mm (1.8"/3.5" x 2.6")



## LIGHT SENSITIVE SWITCH

■ ■ ■ □ □ □ MK125

Automatically switches on at dusk and turns off at dawn. Adjustable sensitivity with wide range. Delay circuit avoids cycling.

- relay output: NO/NC 24V/5A max.
- power supply: 12VDC
- with adapter connector
- dimensions: 65 x 50mm (2.6" x 2.0")



## RUNNING MICROBUG

■ ■ ■ □ □ □ MK127

Attractive bright coloured bug-shaped miniature robot. The microbug is always hungry for light and travels toward it! Two open chassis subminiature motors. Adjustable light sensitivity for a very wide luminous intensity range, enables the user to control its bug-like behaviour. LED 'eyes' indicate driving direction stops in total darkness

- power supply: 2 x 1.5V AAA batteries (not incl.)
- dimensions: 100 x 60mm (4.0" x 2.4")



## CAR ALARM SIMULATOR

■ ■ ■ □ □ □ MK126

LED with realistic flash sequence simulates active car alarm system. Activates automatically when the engine is turned off. Easy installation with two wires. Adjustable sensitivity.

- low current consumption: 12mA max. (12V only)
- comes complete with prewired LED holder and two warning labels
- dimensions: 57 x 45mm (2.3" x 1.8")



## KITCHEN TIMER

■ ■ ■ □ □ □ MK128

Times 1 minute to 1 hour. Single button, straightforward operation. Clear 16-LED readout. Audible and visible alarm with discrete pre-alarm. Auto power-off. Attractive designer enclosure.

- $\mu$ controller technology
- settings:
  - 1-10': one minute steps
  - 10-30': five minute steps
  - 30-60': 15 minute steps
- basic accuracy: better than 5%
- power supply: 3 x AAA 1.5V batteries (not incl.)
- power consumption: 10mA typ.
- dimensions: 76.5 x 75 x 32mm (3.1" x 3.0" x 1.3")



## CRAWLING MICROBUG

■ ■ ■ ■ ■ **MK129**

Attractive brightly coloured bug-shaped miniature robot. The microbug is always hungry for light, it drives towards it. 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.

- power supply: 2 x 1.5V AAA batteries (not incl.)
- dimensions: 110 x 90mm (4.3" x 3.5")

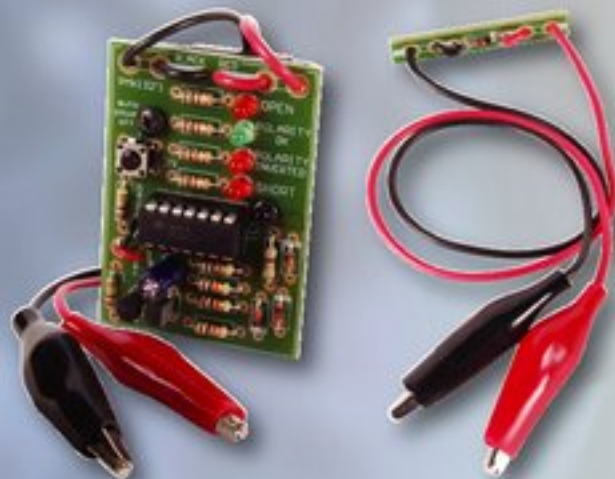


## CABLE POLARITY CHECKER

■ ■ ■ ■ ■ **MK132**

Check cables for continuity and identify individual wires. Perfect tool to check speaker cable polarity. LED indication for open circuit, shorts and correct or wrong polarity. Push-button operation with auto power off.

- low power consumption: 10mA max.
- power supply: 9V battery operated (not incl.)
- dimensions:
  - main board: 56 x 40 x 33mm (2.2" x 1.6" x 1.3")
  - remote board: 40 x 7mm (1.6" x 0.3")



## 3D XMAS TREE

■ ■ ■ ■ ■ **MK130**

The ultimate Xmas gadget. 16 flashing red LEDs. Extra green and yellow LEDs provided to customise your tree. Can be hung on and fed through wires.

- low power consumption: 8mA
- power supply: 9V battery operation (not incl.)
- will operate on 12VDC (e.g. in cars, ...)
- dimensions: 80 x 88 x 102mm (3.1" x 3.5" x 4.0")



## QUIZ TABLE

■ ■ ■ ■ ■ **MK133**

Up to four players can compete. LED indicates first button pushed. Quizmaster 'RESET' -button with 'button pushed' -indication. Two units can be daisy-chained for eight-player-fun !

- with on/off switch
- power supply: 9V battery (not included)
- dimensions: 110 x 78 x 28mm (4.3" x 3.1" x 1.1")



## TRAFFIC LIGHT

■ ■ ■ ■ ■ **MK131**

Miniature traffic light as used on four-way junctions. Realistic operation with adjustable delay. 12 LEDs. Great for model railroads, exhibitions, as a toy, ...

- low power consumption: 15mA
- power supply: 9V battery (not incl.)
- ON/OFF switch
- dimensions: 50 x 35 x 115mm (2.0" x 1.4" x 4.5")



## STEAM ENGINE SOUND GENERATOR WITH WHISTLE

■ ■ ■ ■ ■ **MK134**

Generates the sound of a vintage steam engine. Adjustable 'speed' and volume. Great for model railroads, radio plays, stage or as a gadget. With 'steam whistle' -push button.

- power supply: 9V battery (not incl.)
- comes with 8 ohm/0.5W miniature speaker
- dimensions: 100 x 83mm (3.9" x 3.3")





## ELECTRONIC DECISION MAKER

■ ■ ■ ■ ■ **MK135**

Helps making difficult YES or NO decisions. Ideal for the indecisive. Simply push the button to start flashing of YES/NO LEDs. Flashing speed gradually decreases and finally one LED remains lit.



- low power consumption: 1µA idle / 8mA in-use
- auto power-off
- power supply: 9V battery operated (not incl.)
- dimensions: 55 x 30 x 35mm (2.2" x 1.2" x 1.4")

## SUPER STEREO EAR

■ ■ ■ ■ ■ **MK136**

Stereo audio amplifier boosts sound 50 times. Great for the-hearing impaired (e.g. when watching TV), as a gadget, science project, ... With volume control and on/off switch.

- power supply: 3 x 1.5V AA batteries (not incl.)
- dimensions: 62 x 54 x 44mm (2.4" x 2.1" x 1.7")



## IR REMOTE CHECKER

■ ■ ■ ■ ■ **MK137**

The easy way to check your IR remote for proper operation. Simple operation : point the remote at the sensor and push an arbitrary button. Four flashing LEDs indicate remote operation.

- low power consumption
- power supply: 9V battery (not incl.)
- dimensions: 55 x 30 x 33mm (2.2" x 1.2" x 1.3")



## THERMOSTAT

■ ■ ■ ■ ■ **MK138**

General purpose low-cost thermostat with NTC temperature sensor. Output relay with LED indicator.

- temperature range: +5°C to +30°C approx. (41°F to 86°F)
- relay power rating: 24VDC/AC 3A
- power supply: 12VDC / 100mA
- dimensions: 54 x 62 x 28mm (2.1" x 2.4" x 1.1")



## CLAP ON/OFF SWITCH

■ ■ ■ ■ ■ **MK139**

Operate your lighting simply by clapping your hands. Ideal for disabled or elderly people. Good immunity against surrounding noises. '1-clap' or '2-clap'-mode selection. '2-clap'-mode features built-in safety turn-off timer (approx. 5h). Output relay 'pulse' or 'toggle' selection. Microprocessor-controlled. Output relay with LED indicator.

- relay power rating: 24VDC/AC 3A
- power supply: 12VDC / 150mA
- with DC adapter socket
- dimensions: 79 x 73 x 22mm (3.1" x 2.9" x 0.9")



## KARAOKE

■ ■ ■ ■ ■ **MK140**

Sing along to your favourite music. Hook-up the unit between your CD player, MD player or any other line-level source on the one hand and your amplifier on the other. RCA (cinch) input and output sockets with 6.35mm microphone jack, fits most microphones. Adjustable microphone level. "Vocal reduction"-switch reduces original vocals on most stereo recordings. On/off switch and LED power indicator.

- power supply: 9V battery (not incl.)
- low power consumption: 16mA typ.
- dimensions: 100 x 84 x 25mm (3.9" x 3.3" x 1.0")



## SMD HAPPY FACE

MK141

Mini gadget. 2 LEDs flash alternately. Can be used as a pendant (cord supplied). Great as attention grabber. Ideal introduction into SMD (Surface-Mounted Device) technology. Some extra parts are supplied, in case some get lost or damaged

- power supply: 3V Li button cell (e.g. CR2025 or CR2032)
- power consumption: 5mA approx.
- dimensions: Ø29 x 8mm (Ø1.1" x 0.3")



## SMD X-MAS TREE

MK142

Miniature Xmas gadget. 6 LEDs flash alternately. Tree can be operated pending (e.g. from the ceiling or Xmas tree) or can be worn as a badge (pin supplied). Great attention grabber. Ideal introduction to SMD (Surface Mounted Device) technology. Some extra parts are supplied in case some get lost or damaged.

- power supply: 3V Li button cell (e.g. CR2025 or CR2032)
- power consumption: 5mA approx.
- dimensions: 45 x 41 x 8mm (1.75" x 1.6" x 0.3")



## SMD FLASHING HEART

MK144

Mini gadget. 6 LEDs flash alternately. Can be operated pending (e.g. around the neck) or can be worn as a badge (pin supplied). Great attention grabber. Ideal introduction to SMD (Surface-Mounted Device) technology. Some extra parts are supplied, in case some get lost or damaged.

- power supply: 3V Li button cell (e.g. CR2025 or CR2032) (not included)
- power consumption: 5mA approx.
- dimensions: 49 x 44 x 8mm (1.9" x 1.7" x 0.3")



## WHITE LED FLASHLIGHT

MK143

White LED technology. 2 high-power LEDs (4500mcd). LED life: > 100.000h (more than 11 years at a stretch!). Low power consumption. Runs up to 10 hours on a single battery (test conditions: 15s ON, 60s OFF continuous for 7 hours/day). Automatic battery management for efficient use of battery power. Built-in strobo effect for emergencies. Can also be used as an attention grabber, ...

- power supply: 12V e.g. V23GA, GP23GA, etc... (battery not incl.)
- dimensions: 60 x 40 x 14mm (2.4" x 1.6" x 0.6")
- weight: 31g (with battery)



## HALLOWEEN PUMPKIN

MK145

25-LED brightly-coloured Halloween pumpkin  
Random flash effect simulates flickering candle  
1 extra high intensity yellow LED illuminates the pumpkin  
On/off switch

- power supply: 9V battery (not incl.) / 20mA
- dimensions: 100 x 80 x 33mm / 4.0" x 3.2" x 1.3"



## POCKET VU METER IN ENCLOSURE

MK146

LEDs move to the rhythm of the music. Surprise your friends in the disco. Incorporated microphone. Adjustable sensitivity.

- power supply: 3V type CR2032 battery (not incl.)
- on/off switch
- 5 LEDs
- designer enclosure
- dimensions: 87 x 50 x 25mm



## DUAL WHITE LED STROBOSCOPE

■ ■ ■ ■ ■ **MK147**

Two super bright white LEDs. Powerful flash effect. Great for parties, scale models, as an attention grabber, to observe moving parts, etc... Slow/fast selector and speed adjust trimmer. Speed adjustable between approx. 1 and 60 flashes/second. On/off switch.



- power supply: 9V battery (not incl.)
- power consumption: 40mA max.
- dimensions: 55 x 32 x 40mm (2.2" x 1.3" x 1.6")

## DUAL SUPER BRIGHT FLASHING RED LIGHTS

■ ■ ■ ■ ■ **MK148**

Two super bright red LEDs. Very powerful flash effect. For emergencies, warning signs, as eye-catcher, 'alarm-active' - simulation, etc ... 'Auto turn-on at dark' - mode with adjustable sensitivity. On/off switch.



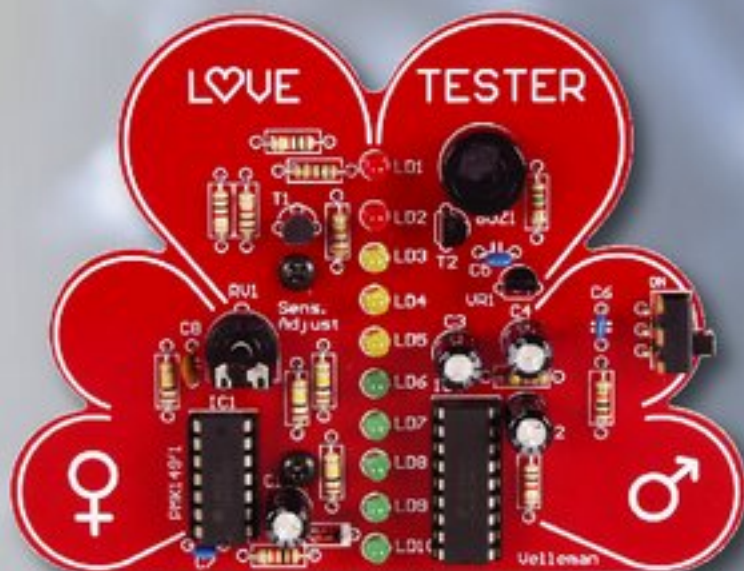
- power supply: 9V battery (not incl.) (12V possible)
- dimensions: 55 x 32 x 40mm (2.2" x 1.3" x 1.6")

## LOVE TESTER

■ ■ ■ ■ ■ **MK149**

Check your love life ! Each partner holds one end of the PCB, then they join hands, watch the meter go ... Great fun at parties, among friends, etc... 10-LED readout plus audible 'love-level'-indication. Flashing LEDs indicate you're a red-hot lover. Wide sensitivity range covers the entire spectrum, from cool to a steaming Latin lover! Power switch included.

- power supply: 9V battery (not incl.)
- dimensions: 105 x 80 x 25mm (4.1" x 3.1" x 0.98")



## SHAKING DICE

■ ■ ■ ■ ■ **MK150**

No push buttons required, just give it a shake. Slowly rolls to a stop and flashes the last combination. Microprocessor-controlled. Auto power-off.



- power supply: 3V-battery (CR2025 or CR2032) (not incl.)
- dimensions: 36 x 36 x 32mm (1.4" x 1.4" x 1.3")

## DIGITAL LED CLOCK

■ ■ ■ ■ ■ **MK151**

Clock with red 7-segment displays in an attractive enclosure. Automatic time base selection (internal or net-frequency controlled 50/60Hz). Internal time base with fine-tuning adjustment. Select 12h- or 24h-mode for the time display. Equipped with backup battery (3 x AA) in case of power failure. Clock still displays the time in case of power failure

- power supply: 9V AC/DC
- dimensions: 92 x 45 x 101mm (3.6" x 1.8" x 4.0")
- recommended adapter: PS905AC (230VAC)

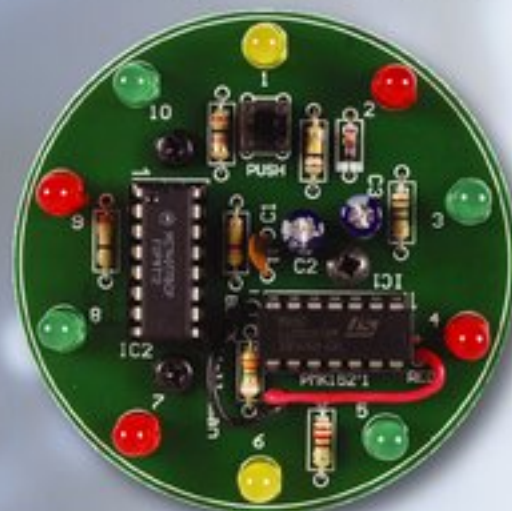


## WHEEL OF FORTUNE

■ ■ ■ ■ ■ **MK152**

10-LED wheel of fortune. Push the button to start spinning action. Spinning speed gradually decreases. Finally it stops and one LED remains lit. Auto power-off. Low power consumption

- power supply: 9V battery (not incl.)
- dimensions: Ø64 x 33mm (Ø2.6" x 1.3")

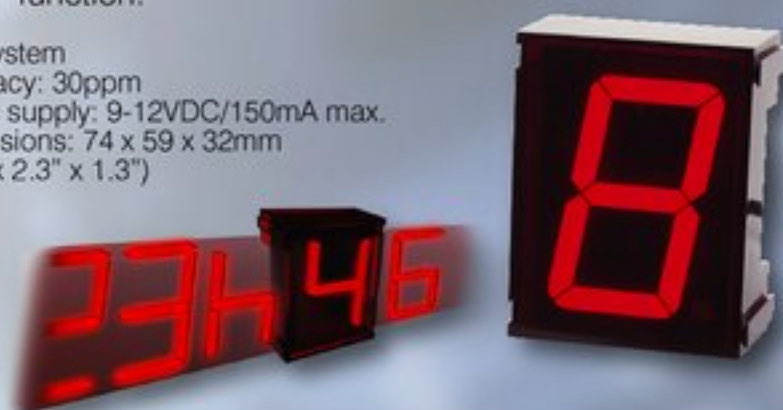


## JUMBO SINGLE DIGIT CLOCK

■ ■ ■ ■ ■ ■ ■ ■ **MK153**

Gadget clock. Time is displayed as a sequence of digits. Bright 57mm jumbo red 7-segment display. Complete with attractive enclosure. Single button operation. 'Blank display' function.

- 12h system
- accuracy: 30ppm
- power supply: 9-12VDC/150mA max.
- dimensions: 74 x 59 x 32mm (2.9" x 2.3" x 1.3")



## LCD MINI MESSAGE BOARD

■ ■ ■ ■ ■ ■ ■ ■ **MK157**

miniature message board with a single-line 16-character LCD display  
message scrolls from right to left with adjustable speed  
applications: at exhibitions, for advertising, to greet visitors at the front door, as a name tag, ...  
message memory for 46 characters  
possibility to add pauses during scrolling

- power supply: 2 x AAA battery (not incl.)
- dimensions: 100 x 38 x 32mm (3.9" x 1.5" x 1.3")



## 5-IN-1 EMERGENCY TOOL

■ ■ ■ ■ ■ ■ ■ ■ **MK154**

Microprocessor technology. Functions include: flashlight, emergency flasher, SOS morse code flasher, SOS message wand and lighting distance meter. Applications: camping, biking, hiking, boating, in the car, etc... Attractive enclosure with belt clip. Low power consumption.

- power supply: 2 x 1.5V AAA batteries (not incl.)
- dimensions: 160 x 26 x 24mm (6.3" x 1.0" x 0.9")



## LCD MINI MESSAGE BOARD WITH BACKLIGHT AND ENCLOSURE

■ ■ ■ ■ ■ ■ ■ ■ **MK158**

Miniature message board with a single-line 16-character backlit LCD display. 124-character EEPROM message memory. Message scrolls with adjustable speed. Built-in message editor. Built-in RS232 interface for easy message uploading and displaying. Free interfacing software available from [www.velleman.be](http://www.velleman.be). Applications: at exhibitions, for advertising, to greet visitors at the front door, as a name tag, serially-controlled display in equipment, ...

- power supply: 9VDC / 100mA
- dimensions: 115 x 43 x 75mm (4.5" x 1.7" x 3.0")



## MAGIC MESSAGE

■ ■ ■ ■ ■ ■ ■ ■ **MK155**

Amaze your friends: wave the wand to make the message appear. The message seems to float on the air... Lots of built-in messages + enter your own 7-character message. Applications: novelty gadget, in emergencies, at concerts or TV-shows, to welcome people, etc... Excellent visibility due to high intensity red LEDs. Low power consumption. Auto power-off.

- power supply: 2 x AAA batteries (not incl.)
- dimensions: 160 x 26 x 24mm (6.4" x 1.0" x 0.9")



## BRAIN GAME

■ ■ ■ ■ ■ ■ ■ ■ **MK159**

Just 4 LEDs and 4 push buttons provide hours of fun. The object of the game is to repeat a randomly generated pattern. The pattern is played both visually and audible or visually only (selectable). It features 4 difficulty levels, which can be selected at start-up. The replay speed gradually increases during the game, to make it even more challenging. Low power consumption. Microprocessor-controlled. Auto power off.

- power supply: 3 x 1.5V AAA batteries (not incl.)
- dimensions: 84 x 67 x 41mm (3.3" x 2.6" x 1.6")



## REMOTE CONTROL VIA GSM MOBILE PHONE

### MK160

Turn equipment ON and OFF from a random place via your cellular phone. Applications: turn on the lights or the heating, open your gate, control animal feeders, make believe you are at home, activate a car alarm, etc. Ring detection circuit avoids phone charges. No need to open or modify your cellular or connect it with other devices. Compatible with most cellular phones.

- dual operation mode: toggle ON/OFF or ON with auto turn-off timer
- timer settings: 0.5s, 2s, 30s, 1 min, 5 min, 15 min, 30 min and 1 hour
- NO/NC 3A relay output
- power supply: 12VDC / 100mA
- dimensions: 101 x 42 x 23mm (4.0" x 1.7" x 0.9")



## 2-CHANNEL IR REMOTE RECEIVER

### MK161

Two channels with relay output (24VAC/DC 1A max.). Ultra compact. Channel and reception indication through LEDs. Toggle / pulse selection for each channel. Learn mode for channel ID. All settings are stored in EEPROM. Compatible with most Velleman Kit IR remotes: MK162, K6710, K8051, K8049.

- power supply: 12VDC
- power consumption: 75mA max.
- dimensions: 45 x 50 x 15mm (1.7" x 1.9" x 0.6")



## 2-CHANNEL IR REMOTE TRANSMITTER

### MK162

Compact 2-button IR keychain remote. Compatible with most Velleman IR receivers. 2 powerful IR LEDs for a range of up to 15m (indoors). 16 channels (allow use of multiple transmitters in one room). Easy channel configuration, no jumpers required. 'Transmit'-LED.

- power supply: 12V (e.g. VG23GA, GP23GA, etc...) (not incl.)
- dimensions: 60 x 40 x 14mm (2.3" x 1.6" x 0.5")



## ELECTRONIC STEREO VOLUME CONTROL

### MK163

IR-controlled electronic volume adjustment. Controls the volume of line-level audio signals, suitable for PC or hi-fi applications. Small enough to be built into existing units e.g. CD & DVD players, ... Compatible with all Velleman IR remotes (except K6708).

- stereo line level in/out: 2Vrms max.
- range: 0dB to -78dB (62 steps)
- 'mute'-function with auto fade-in
- volume up/down/mute buttons
- power supply: 9-12VDC/100mA
- dimensions: 82 x 35 x 15mm (3.2" x 1.4" x 0.6")



## IR ELECTRONIC VOLUME CONTROL

### MK164

IR-controlled electronic volume adjustment. Controls the volume of audio signals, suitable for PC or hi-fi applications. Small enough to put next to existing units, CD or DVD player, ...

- stereo line level in/out: 2Vrms max.
- range: 0dB to -78dB (62 steps)
- 'mute'-function with auto fade-in
- LED volume indication
- complete with enclosure, 3.5mm F stereo mini-jacks and adapter socket (9-12VDC/100mA)
- responds to all Velleman IR remotes (except K6708)
- dimensions: approx. 80 x 55 x 33mm (3.2" x 2.2" x 1.3")



## CRAWLING MICROBUG

### MK165

Attractive bug-shaped miniature robot. The microbug is always hungry for light and heads towards it. 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.

- power supply: 2 x 1.5V AAA batteries (not incl.)
- dimensions: 130 x 90 x 50mm (5.2" x 3.5" x 2.0")



## ANIMATED GHOST

■ ■ ■ □ □ □ **MK166**

Great Halloween gadget. Greets your visitors. For shops, parties, events or just for fun.

- ghost responds to sudden noises
- adjustable sensitivity
- battery operation: 2xAAA battery
- dimensions: 137x68x50mm



## 60-LED MULTI-EFFECT STAR

■ ■ ■ □ □ □ **MK170**

Processor-controlled LED star creating multiple dazzling effects. Extra LEDs included, allowing different colour combinations: make your own mix of red and yellow LED's or make the star fully red or yellow. On-board effect selection push button. "All effects" sequencing is possible (standard setting). 24 effects: 3 static / 15 blinking / 6 animations with fading.

- 60 LEDs on board
- power supply: 9 to 12Vdc adapter or battery (not incl.)
- current consumption: 20mA (static mode 9V battery)
- dimensions: 105x110x35mm



## new ELECTRONIC CANDLE

■ ■ ■ □ □ □ **MK167**

Cannot be blown out by the wind. Safe for kids and pets. Great at home, for parties, Xmas, Halloween, etc. Fits standard 38mm cup. Safe: no flame or heat. 5h turn-off timer saves batteries. Yellow high-intensity LED.

Choose between 3 different modes:

- realistically flickering flame
- steady flame
- fade in - fade out

- power supply: 1x CR2032 3V battery (not incl.)
- autonomy: +/- 15 days (5h/day, flickering candle mode)
- power-off timer: +/- 5h
- current consumption: 4mA max
- dimensions: 38x25mm



## VOICE CHANGER

■ ■ ■ □ □ □ **MK171**

Make your voice sound like a robot. Add vibrato effect. Use the 'pitch'-buttons and make your voice sound lower or higher. Built-in microphone and power amplifier with volume control, just add a speaker. Hours of fun! For parties, plays, recordings, games, prank phone calls etc.

- speaker / line output
- on/off switch
- max. output power: 1.5 W (4 ohm)
- power supply: 9Vdc / 300mA
- dimensions: 77 x 46 mm



## new FLASHING LED STAR

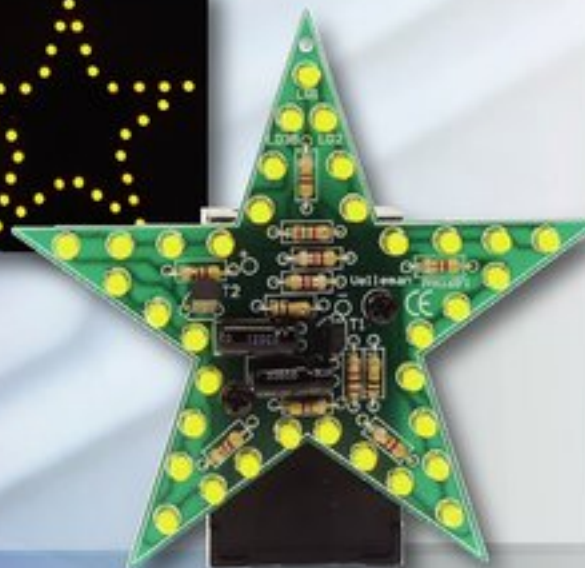
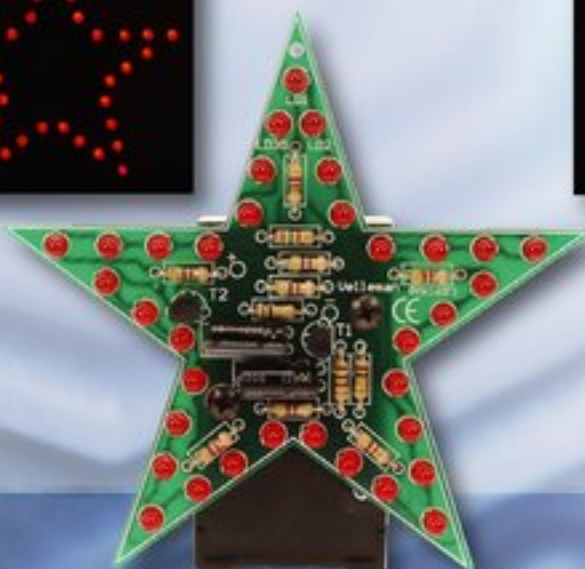
Great seasonal gadget! Safe battery operation. Select: flashing or static operation. Application: desktop or hanging from the ceiling. Several units enhance the effect. In-car (12V) operation possible.

- 35 LEDs
- power supply: 1x 9V battery (not incl.)
- current consumption: 40mA (static mode)
- flash duty cycle: 1:2
- dimensions: 90x90mm

■ ■ ■ □ □ □ **MK169R RED LED STAR**



■ ■ ■ □ □ □ **MK169Y YELLOW LED STAR**



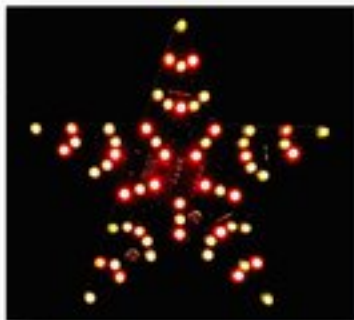
**COMING IN 2006**

## SOUND LED STAR

MK172

Traditional LED VU-meters are boring!  
This star-shaped VU-meter will brighten up your party!

- 60 leds LED 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, as eye-catcher, etc...
- Power supply: 9 - 12VDC / 200mA
- Dimensions: 105 x 110 x 35



## ONE CHANNEL RF RECEIVER FOR K8058

K8070

For use with K8058 and VM118R eight channel RF transmitter. Relay outputs. Toggle or pulse function selectable. Learn function to work with each channel 1 to 8 from transmitter. LED indicators for output and functions. Suitable for various control applications, home, lights, garden applications...

- power supply: 9 to 12V AC or DC / 100mA max.
- 2 relay contacts NO / NC: 3A
- 433MHz operation
- open-field range of up to 30m
- dimensions: 100 x 82mm (3.9" x 3.2")



## SUBWOOFER KIT

K8077

Complete kit, just add wood. Kit includes: 100Wrms amplifier and filter circuit, two 16cm woofers, alu rear panel, bass-reflex tube, small hardware and assembly instructions for both amp circuit and enclosure

- Powerful 100Wrms amplifier
- Two 16cm drivers
- Adjustable bass reflex tube
- Adjustable low-pass filter with phase switch
- Line- and speaker-level inputs
- $\mu$ -controller auto turn-on feature



## POWERBLOCK

K8081

- Audio amplifier ideal for active speaker set-up
- Automatic switch-on, through input signal sensing
- DC and overload protection with LED indication
- 100W / 200W music power in 4ohm
- Comes complete with enclosure and transformer
- 115 - 235Vac power supply



## SAFE STYLE CODELOCK

K8082

- Codelock with rotary encoder and 7-segment display
- 4-digit code
- Several operating modes
- Adjustable pulse duration
- 1A NO/NC relay output
- 12VDC operation



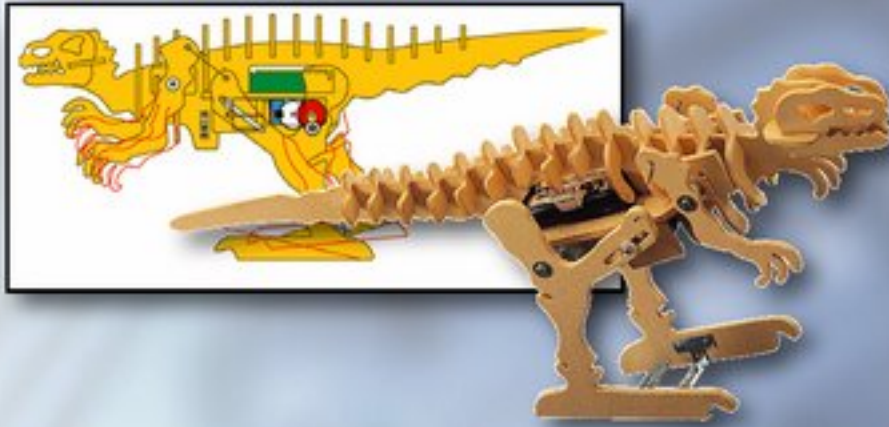
## MECHANICAL MOTORISED WOODEN KITS

A series of Mechanical Motorised Kits for future engineers. Familiarise yourself with the operation of transmissions steered through gears or pulleys. Easy to build, no glue or soldering required. Supplied with: pre-punched boards, gearbox, gears, shafts, switch, motor, battery holder and all necessary parts. Instructions are easy to follow. Powered by: 2 x AA batteries (not included). Required tools: knife, screwdriver, long-nose pliers.

### TYRANNOMECH

**KNS1**

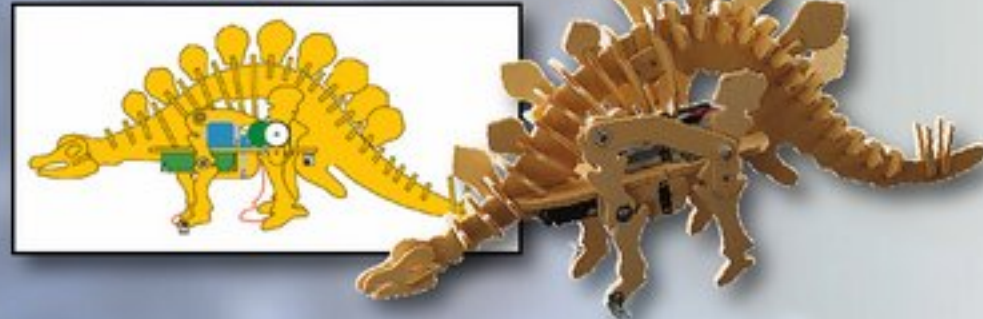
- transmission: gear drive operation



### STEGOMECH

**KNS2**

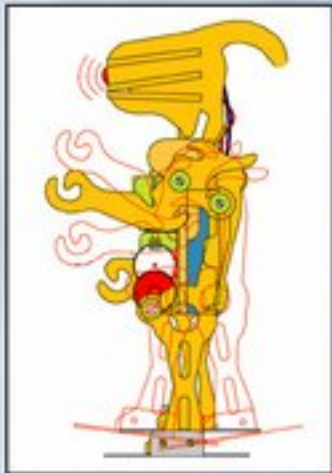
- transmission: gear drive operation



### ROBOMECH

**KNS3**

- transmission: gear drive operation



### COPTERMECH

**KNS4**

- transmission: pulley drive operation



### AUTOMECH

**KNS5**

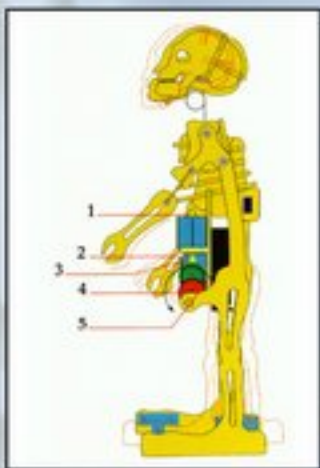
- transmission: pulley drive operation



### SKELETON

**KNS8**

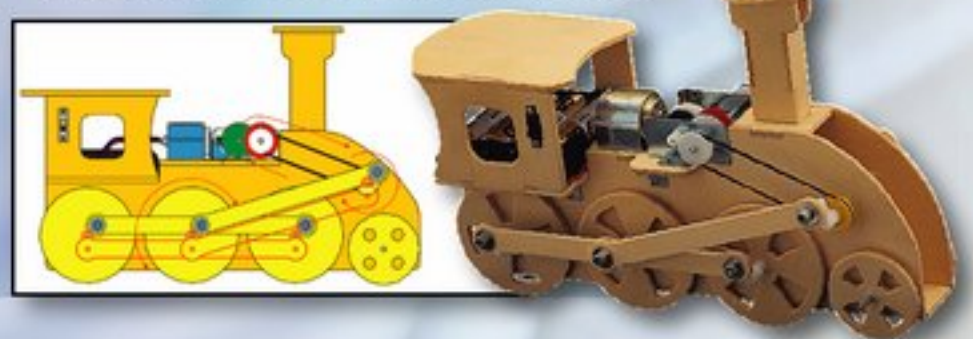
- transmission: gear drive operation



### TRAINMECH

**KNS6**

- transmission: gear drive & pulley drive operation



### GEARBOX 2 IN 1

**KNS7**

Use the contents of this set to change the speed of your existing sets. Contains: motor, 2 set gears, metal shafts, gearbox and other accessories.





## ROBOT CAR

### KSR1

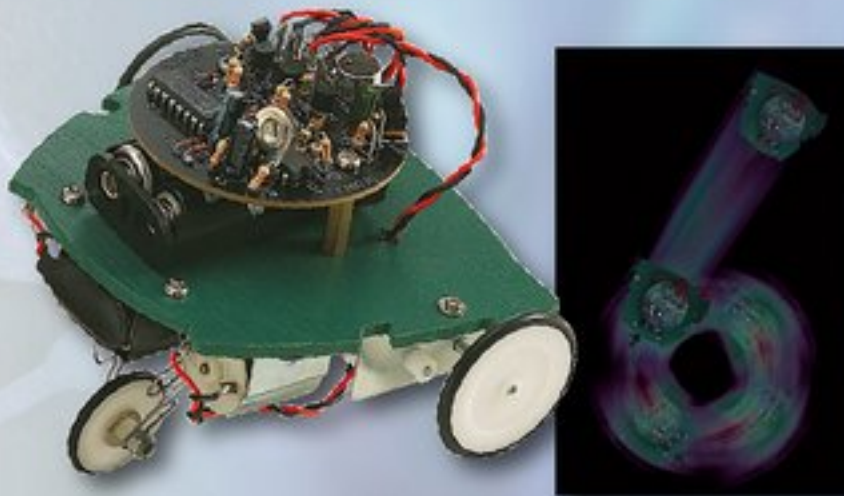
A sensor-activated robot car. The car changes directions when the sensor detects noise or when the car hits an object. Power supply : 2 x 1.5V AA-batteries (not incl.).



## ROBOT FROG

### KSR2

The robot frog moves forward when it detects sound and repeats the following movements sequentially : start (move forward) -> stop -> left turn -> stop -> right turn -> stop. Two sets of gear motors are included (unassembled). Power supply : mechanical : 2 x 1.5V AA batteries (not incl.) ; electronic : 9V-battery (not incl.).



## HEXAPOD ROBOT

### KSR3

This hexapod monster is a robot that uses infrared emitting diodes for eyes and uses 6 legs to propel itself. It backs up to the left when it detects obstacles and subsequently keeps moving forward as long as the sensor does not detect any new obstacles. Two sets of gear motors (unassembled). Power supply : mechanical : 2 x 1.5V AA batteries (not incl.) ; electronic : 9V-battery (not incl.).



## "ESCAPE" ROBOT KIT

### KSR4

3 infrared emitting diodes and 1 infrared receiving module. Built-in microprocessor. Gathers and processes information about its environment, which enables it to avoid any obstacle. Power supply: 4 x 1.5V AAA batteries (not incl.).



## "SCARAB" ROBOT KIT

### KSR5

When its antennas (touch sensor) detect an obstacle, Scarab will first step back and then automatically execute a two-step manoeuvre to avoid the obstacle. The Scarab Robot can be configured with different sets of movements. Power supply: 4 x 1.5V AAA batteries (not incl.).



## "LADYBUG" ROBOT KIT

### KSR6

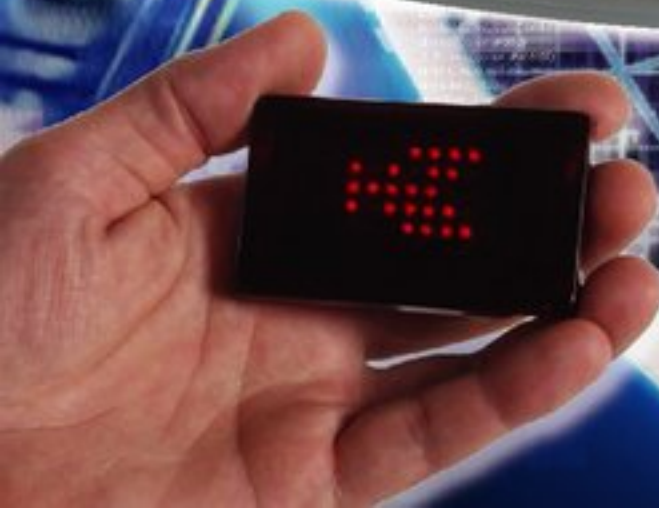
Ladybug walks straight ahead but automatically makes a left turn the moment an obstacle is detected. Power supply: 4 x 1.5V AAA batteries (not incl.).



# velleman®

## MODULES

**READY BUILD AND TESTED MODULES!**



## 200W POWER AMPLIFIER MODULE

### VM100

Excellent value for money. Fully discrete design using Epitaxial Darlington transistors. DC supply circuit on board with LED indication. Ideal for active speaker system or subwoofer, guitar amp, home theatre systems, instrument amp, etc. Comes fully adjusted and tested. Overload and short-circuit protection.

- 200W music power @ 4 ohm load
- 100Wrms power @ 4 ohm load
- 70Wrms power @ 8 ohm load
- distortion: 0.02% @ 1KHz/10W
- damping factor: >800
- frequency response: 3Hz to 200KHz (-3dB)
- sensitivity: 0.6Vrms
- signal to noise ratio: 115dB
- power supply: 25-30Vac 120VA
- PCB dimensions: 107x62mm (approx.)
- recommended power transformer:
  - 230VAC input, 2 x 30VAC output: 12030
  - 115 / 230VAC input, 2 x 25VAC output: TR8040 (output power reduced by  $\pm 15\%$ )



## MULTIFUNCTIONAL TIMER MODULE

### VM102

This multifunctional timer module is ideal for controlling light bulbs, halogen lamps, fluorescent lighting, fans, electric valves, buzzers, etc. ... Thanks to the EEPROM, this module's delays are memorised, even in the event of a power failure. The multifunctional timer module has no fewer than 15 functions e.g. timers, switching, blinking, interval, random switching, staircase light control, ...

- relay contacts are protected against the voltage pulses that are caused by the switching of inductive loads
- EEPROM for delay time storage in case of power failure
- can be mounted in a switch box on a DIN rail or on a wall
- learning mode for delays of 2s up to 12 days
- two pre-programmed delays
- AC power: 110 to 240VAC
- max. load: 1100VA at 230VAC & 550VA at 115VAC
- dimensions: 106 x 101 x 44.5mm (4.2" x 4.0" x 1.75")
- weight: 282g (0.63lbs)



## MULTIFUNCTIONAL DIMMER

### VM101

This multifunctional dimmer was designed specifically for lighting control through a microprocessor. The device will automatically deactivate when the loads behaves too inductive. The multifunctional dimmer can be operated from various places and the "soft start" function prolongs the life of your light bulbs. The multifunctional dimmer has 13 functions e.g. push button, regular dimmer, staircase light control, slow ON/OFF, interval timer, speed adjustment for fans, etc...

- noise suppressed according to EN55015
- no memory loss in case of power failure
- can be mounted in a switch box on a DIN rail or on a wall
- auto frequency detection: 50 or 60Hz
- AC power: 110 to 240VAC
- max. load: 2.5A (300W at 115VAC & 600W at 240Vac)
- dimensions: 106 x 101 x 44.5mm (4.2" x 4.0" x 1.75")
- weight: 207g (0.46lbs)

## BLINKING MODULE

### VM103

This blinking module was designed for the activation and deactivation of a load (e.g. lighting) in order to obtain a blinking effect. The ON and the OFF duration can be adjusted separately. The blinking module is suited for both resistive and slightly inductive loads. This blinking module is ideally suited for steering e.g. disco lights, safety signs, light bulbs, ferromagnetic transformers for halogen lighting, etc ...

- noise suppressed according to EN55015
- can be mounted in a switch box on a DIN rail or on a wall
- adjustable speed
- led indication
- AC power: 110 to 240VAC
- max. load: 3A : 500W (240VAC cos fi = 1) / 250W (115VAC - cos fi = 1)
- ON-time adjustable between: 50ms and 2.5s
- OFF-time adjustable between: 0.5s and 15s
- dimensions: 106 x 101 x 44.5mm (4.2" x 4.0" x 1.75")
- weight: 172g (0.38lbs)



## 4 CHANNEL RUNNING LIGHT MODULE

### VM104

The running light module is the perfect addition to your existing system if you are looking 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 LED indication.

- suppressed according to EN55015
- can be mounted in a switch box on a DIN rail or on a wall
- adjustable speed for the switching of the charge
- led indication
- AC power: 110 to 240VAC
- max. load per channel: 2A : 450W (240VAC -  $\cos \phi = 1$ )/230W (115VAC -  $\cos \phi = 1$ )
- speed adjustable between: 0.2 and 3Hz
- dimensions : 106 x 101 x 44.5mm (4.2" x 4.0" x 1.75")
- weight: 177g (0.39lbs)



## VIDEO SIGNAL CLEANER MODULE

### VM106

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 in- and output (S-video and composite video signals can not be mixed). Led indication when distorted video signal detected. For PAL / NTSC video.

Warning:

- only use to make personal backup copies from original video material from which you are the rightful owner (DVD, VHS, VCD, ...)
- check copyright information on the original material

- power supply: 9Vdc / 100mA min. (adapter required)
- dimensions: 106 x 101 x 44.5mm (4.2" x 4.0" x 1.8")
- recommended adapter: PS905



## AC POWER SLAVE MODULE

### VM105

This module will certainly come in handy if, when activating one device (or a light or a series of lights), you wish to activate a second device.

- adjustable sensitivity
- protected against current variations in master load
- power indication
- can be mounted in a switch box on a DIN rail or on a wall
- Master + Slave:
  - AC power: 115 or 240 VAC
  - max. load: 400W (230VAC) or 250W (115VAC)
- Slave:
  - AC power: 110 to 240 VAC
  - max. load: 5A (1100W / 230VAC - 550W / 115VAC)
- minimal detectable LOAD: 5W ( $\cos \phi = 1$ )
- dimensions: 106 x 101 x 44.5mm (4.2" x 4.0" x 1.8")
- weight: 187g (0.42lbs)



## MULTIFUNCTIONAL COUNTER MODULE

### VM107

Ideal for counting people or parts, for keeping scores, etc... The HOURS:MIN and the MIN:SEC functions are also very practical (displays 23:59 & 59:59). A built-in oscillator makes it possible to time intervals without making use of an external oscillator (clock function). Counting impulses (addition & subtraction) can be given both through push buttons and the counting inputs. A memory function constantly compares the current value with a preset value and activates an output for as long as both are equal.

- counter input: 3...12 VDC (normal dry contact also possible)
- EQUAL Output: 5VDC / max 50mA
- max. counting speed: 200 / sec. (2 / sec with long debounce delay)
- max. count: 4 digits (9999 / 23h59m / 59m59s)
- power supply: 9...12VDC or transformer 2 x 9VAC (type: 209005)
- power consumption: 150mA max.
- dimensions: 165 x 90 x 57mm (6.5" x 3.5" x 2.2") / mounting depth 35mm (1.4")



## 2-CHANNEL RF REMOTE CONTROL SET

### VM109

Two relay contact outputs. Transmitter included (optional extra : type VM108). Toggle or pulse function selectable per output. Pulse function with turn off timer. Can learn a unique 32-bit code. Store up to 31 transmitters. Code memory can be erased for safety purposes. LED indicators for outputs and functions. Special function in pulse mode: press both transmitter buttons at the same time to set the two outputs simultaneously. Suitable for various control applications: garage door, front or back door to your home, light, car...

### RECEIVER

- power supply: 9 to 12V AC or DC / 100mA max.
- relay contacts NO / NC: 3A each
- 433MHz operation
- selectable timers per output: 0.5s, 5s, 30s, 1min, 5min, 15min, 30min and 60min
- open field range of up to 30m
- on board antenna or external antenna
- dimensions: 100 x 82mm (3.9" x 3.2")

### TRANSMITTER

- power supply: 12V battery type V23GA, GP23GA... (1 pcs. included)
- CE compliant with 433MHz norm
- 32 bit code generator
- over 1.000.000.000 combinations
- dimensions: 63 x 40 x 16mm (2.5" x 1.6" x 0.6")

### EXTRA TRANSMITTER ( TYPE VM108 )



## USB INTERFACE CARD MODULE

### VM110

The VM110 interface board has 5 digital input channels and 8 digital output channels. In addition, there are 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 maximum of four) cards to the PC's USB connectors. All communication routines are contained in a Dynamic Link Library (DLL) K8055D.DLL. You may write custom Windows (98SE, 2000, Me, XP) applications in Delphi, Visual Basic, C++ Builder or any other 32-bit Windows application development tool that supports calls to a DLL. Source code for Visual Basic, Delphi and Borland C++ Builder included.

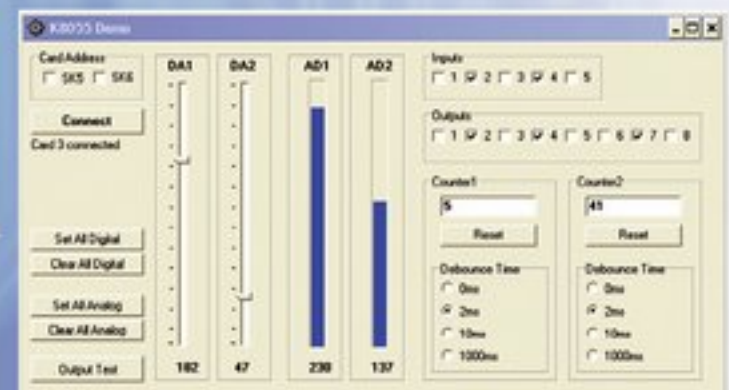
### MINIMUM SYSTEM:

- Pentium class CPU
- USB1.0 or higher connection
- Windows 98SE or higher (Win NT excluded)
- CD ROM player and mouse

### DIAGNOSTIC / TEST SOFTWARE:

- separate output / input test
- clear all / set all function
- counter function on inputs 1 and 2 with adjustable debounce (max 2KHz depends on total I/O load)
- analogue output set sliders
- analogue input bar-graph indication

- 5 digital inputs (0= ground, 1= open) (on-board test buttons provided)
- 2 analogue inputs with attenuation and amplification option (internal test +5V provided)
- 8 digital open collector output switches (max 50V/100mA) (on-board LED indication)
- 2 analogue outputs:
  - 0 to 5V, output resistance 1K5
  - PWM 0 to 100% open collector outputs max 100mA / 40V (on-board LED indication)
- general conversion time: 20ms per command
- power supply: through USB approx. 70mA
- diagnostic software with DLL included
- dimensions: 145 x 88 x 20mm (5.7" x 3." x 0.8")



## PIC® PROGRAMMER AND EXPERIMENT BOARD

### VM111

Suitable for programming Microchip® FLASH PIC(tm) microcontrollers. Supports 4 different 300 mil. PICs: 8p, 14p, 18p and 28p. Test buttons and LED indicators to carry out educational experiments, such as the enclosed programming examples. Easy connection to a PC through the serial port. Enclosed is a Flash Microcontroller (PIC16F627) that can be reprogrammed up to 1000 times for experimenting at will. Software to compile and program your source code is included

- power supply: 12 or 15V DC, min. 300mA, non-regulated adapter (PS1205 / PS1208 / PS1508 (230Vac), PS1208USA (115Vac))
- IBM compatible PC, Pentium or better, with Windows™ 95/98/ME/NT/2000/XP, CDROM and a free serial RS232 port (cable not included, e.g. CW014)
- dimensions: 145 x 100mm (5.8" x 4.0")
- Rev 2.5 supports these microcontrollers:
  - PIC12F629, PIC12F675
  - PIC16C83, PIC16CR83, PIC16F83, PIC16C84, PIC16CR84, PIC16F84, PIC16F84A
  - PIC16F870, PIC16F871, PIC16F872, PIC16F873, PIC16F873A, PIC16F874, PIC16F874A, PIC16F876, PIC16F876A, PIC16F877(A) (ICSP only)
  - PIC16F627, PIC16F627A, PIC16F628, PIC16F628A, PIC16F648A
  - PIC16F630, PIC16F676
  - PIC16F818, PIC16F819

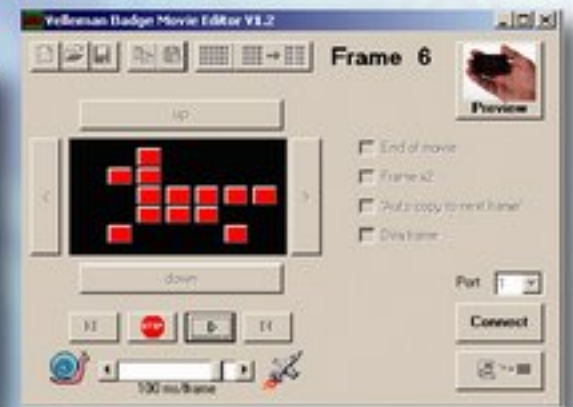
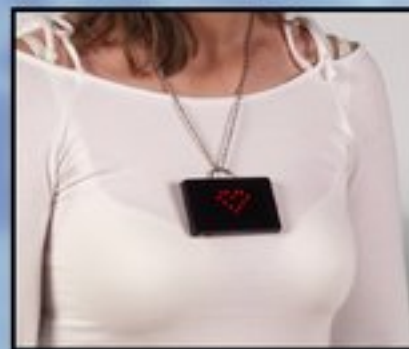


## PERSONAL ANIMATED BADGE

### VM112

Great for parties, at the disco, advertisements, trade shows,... Create your own graphic animations on a badge. Draw the animation using the supplied software and send the animations to the badge (using RS232). 8 animations of 25 frames can be stored in the badge and simply selected. Adjustable animation speed. Two brightness levels. Sample animations supplied. Package includes: RS232 cable, manual, CD with movie editor software and examples, 1 x CR2032 battery.

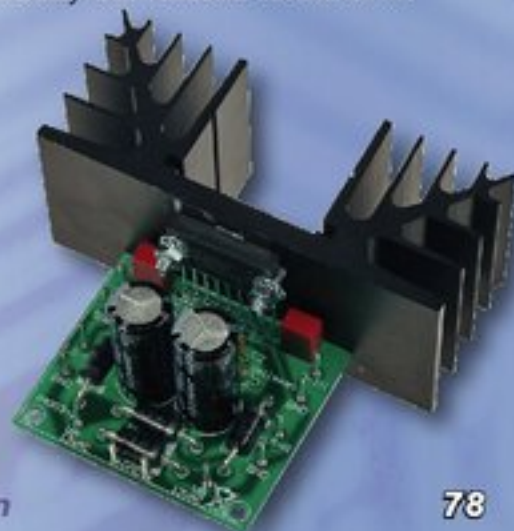
- power supply: 1 x 3.0V CR2032 battery (incl.)
- battery life: more than 50 hours
- dimensions: 80 x 48mm (3.1" x 1.9")



## STEREO AMPLIFIER MODULE 2 X 30W

### VM113

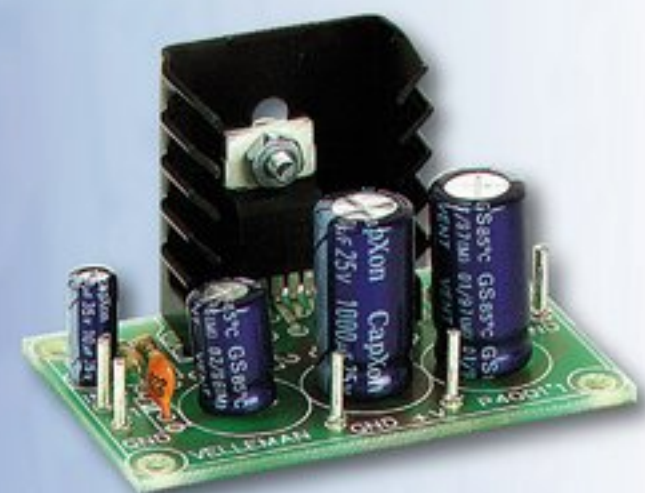
The IC is thermally and short-circuit protected. Additional rectifier and smoothing filter are unnecessary, as alternating current can be directly connected to the unit. Also available in kit version: K4003.



## 7W MONO AUDIO AMPLIFIER MODULE

### VM114

The IC is completely thermally and short-circuit protected. A conventional direct current can be connected as supply. Also available in kit version: K4001.



## USB CONTROLLED DMX INTERFACE

### VM116

This unit can control DMX fixtures using a PC and USB interface. Test software and "DMX Light Player" software is included, a DLL is provided to write your own software. Furthermore there is a stand-alone test function that outputs all 512 channels at a time, with adjustable levels. Kit includes: nice enclosure, USB cable, CD with: test software, DLL for own developments, free DMX light player

- connected and powered through USB
- 512 DMX channels with 256 levels each
- 3 pin XLR-DMX output connector
- Windows 98SE or higher compatible
- DLL included to write your own software
- optional 9V battery needed for stand alone test mode
- solid state - fuse protection on DMX output
- dimensions: 106 x 101 x 44.5mm (4.2" x 4.0" x 1.8")



## 8-CHANNEL RF REMOTE CONTROL SET

### VM118

8-channel RF remote control set. Latching or momentary mode for each output. 8 addresses allow the use of multiple receivers. 'All clear'-function. Open field range up to 50m. Optional extra transmitter type VM118R. Suited for all kinds of applications such as light control, audio speaker selection, garden applications ...

#### TRANSMITTER

- power supply: 3 AAA batteries (not incl.)
- 433MHz operation
- 8 digitally encoded channels
- rubber keypad
- LED function/mode indication
- dimensions: 150x58x23mm
- FCC approved ID code: NLO8058

#### RELAY RECEIVER CARD

- 8 high-quality relay contacts, 5A/230Vac max.
- relay outputs are transient suppressed using VDR's
- LED confirmation on each relay contact
- input power: 12Vac / 500mA
- recommended transformer: 112006 or 206007



## REPLACEMENT 8-CHANNEL RF REMOTE TRANSMITTER

VM118R

## 10-CHANNEL 12VDC LIGHT EFFECT GENERATOR

### VM120

Ten 12V/400mA outputs to control cold-cathode fluorescent lamps (using FLPS adapter), light bulbs, LEDs and "solid state" relays, ... For use with advertisement lighting, party lights, eye-catchers, in the disco... Ten pre-programmed light patterns selectable with a push button. The number of used channels is adjustable. The last used lighting effect is saved in non-volatile memory. Adjustable speed. LED indication for every output. 12V operation possible for use in cars. Options: • adapter: PSS1255 (12V output 5.5A) • power supply for cold-cathode fluorescent lamps: FLPS (300mm) or FLPS1 (100mm) • cold-cathode fluorescent lamps: FL(xx) - (100 or 300mm) • solid-state relays: VR25SS1A or VR3SS1A to drive mains voltage lamps

- power supply: 12V DC
- outputs: 12V DC / 400mA per channel (total : max 4A)
- dimensions PCB: 140 x 100 x 27mm (5.5" x 3.9" x 1.1")



## 15-CHANNEL INFRARED TRANSMITTER

### VM121

Works together with the VM122 15-channel receiver.

- power supply: 3 AAA batteries (not incl.)
- up to 15 channels can be operated
- rubber keypad
- LED function indication
- also compatible with most Velleman IR receiver kits
- range transmitter - receiver: up to 20m



## 15-CHANNEL INFRARED RECEIVER

### VM122

Works together with our VM121 transmitters. 4 different output modes: • 15 independent outputs • 15 radio (rotary simulation) outputs • 7 independent outputs & 8 rotary outputs • 7 rotary outputs & 8 rotary outputs (independent from each other). Allows the use of multiple receivers in one room.

- power supply: 8 - 14VDC or 2x6 to 2x12VAC (150mA)
- 15 open collector contacts: max. 50V/50mA
- transmitter - receiver range: up to 20m
- current consumption:
  - all outputs off : 10mA
  - all outputs on: 150mA



## ULTRASONIC RADAR MODULE

### VM125

Buzzer output: fast / slow / continuous. Distance indication with 3-LED-bar. Adjustable alarm distance. LED alarm indicator. Dry contact NO/NC relay. Applications: robot projects, object detection, distance measuring, parking aid, security systems.

- range: 20 ... 250cm
- frequency: 40kHz
- digital output: 5V (50mA max.)
- analogue output: 0...5V (5mA max.)
- buzzer output: 12V (100mA max.)
- relay contacts: 1A low voltage NO/NC
- power supply: 12VDC
- current consumption: 200mA max.
- dimensions: 110 x 50 x 18mm (4.3" x 2.0" x 0.7")



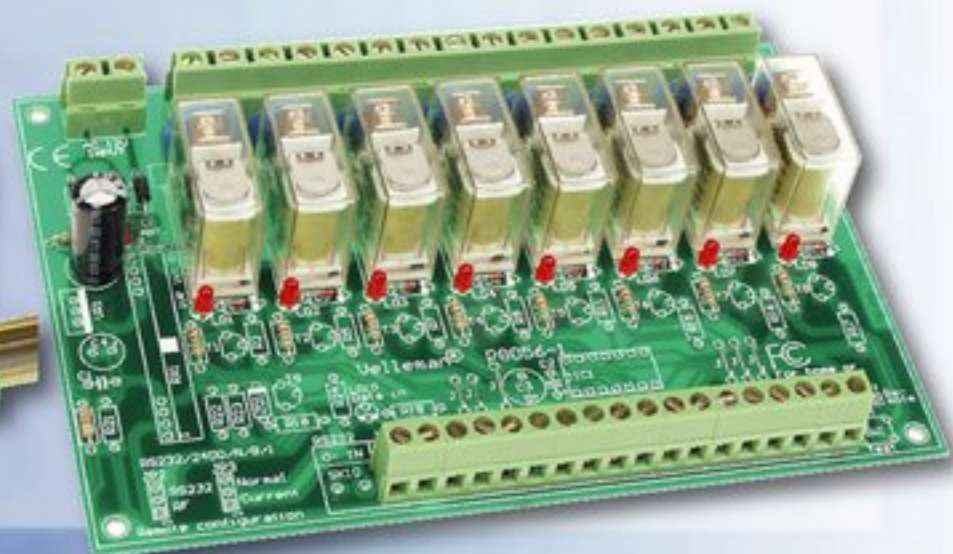
## 8-CHANNEL RELAY CARD

**new**

### VM129

The purpose of this card is to convert electronic outputs or contacts to relay contacts. This results in a practical isolation between load and driving circuit. Ideal for use with our computer interface card VM110 or infrared remote control receiver VM122. The card features high grade input and output connectors.

- eight high quality relay contacts, 5A/230Vac max
- relay outputs are transient suppressed using VDRs
- LED confirmation on each relay contact
- eight drive inputs to use with open collectors or regular switches
- features 12Vdc / 200mA power output (for VM122 supply)
- input power: 12Vac / 500mA (including 12V output)





## DIMMER MODULE FOR ELECTRONIC TRANSFORMER

VM131

**new**

Dimming electronic transformers impossible? Not if you have this unit ! A processor controlled circuit outputs a wave form that is suited for most dimmable electronic transformers. Can also be used for direct mains voltage lamps. LED status indication. Last dim setting memory. Soft start for increased lamp life. Suppression of radio & TV interference. Suitable for incandescent lamps, mains voltage halogen lighting and low voltage halogen lighting in combination with an electronic transformer [Velleman transformer types: HET60 (60W), HET105 (105W), HET150 (150W)]

- operating voltage: 110-125V or 220-240V AC (50/60Hz)
- maximum load: 300W/230V, 0-98% adjustable
- ambient temperature: 5 - 35°C
- dimming cycle speed: +/- 5 sec.
- dimensions: 80x70x25mm / 3,15 x 2,75 x 0,98"



## UNIVERSAL TEMPERATURE SENSOR

VM132

**new**

Measure indoor and outdoor temperatures. Monitors heating and/or cooling of rooms, equipment, etc... Monitor temperatures in processes. Put a temperature readout on your website. Check your pools temperature... Also available in kit version: K8067.

- range: -20°C (-4°F)... +70°C (+158°F)
- output: 0..20mA current loop
- output voltage compliance: 10V
- one single adjustment
- 3-wire system (GND, +V and OUT)
- power supply:
  - 12VDC for 0..5V OUT
  - 15VDC for 0..10V OUT
- current consumption: 30mA max.
- dimensions: 55x35x15



## ENERGY SAVER MODULE

VM133

**new**

Ever forgot to turn off the light or other appliance ? With this unit no more worries; It will always turn off your light or small appliance. Just install it between the wires and it is set! Different timers can be selected. Automatically turns off your light or small appliance Different timers selectable. LED power / timer indication. Easy installation.

- input voltage: 110 to 230VAC
- maximum output: 500W (250W inductive load)
- selectable timers: 1h, 2h, 4h or 8h
- dimensions: 80 x 70 x 25mm / 3,16 x 2,77 x 0,98"



## LOUDSPEAKER DC-PROTECTION MODULE

**M4701A** FOR LOUDSPEAKERS OF 30W MAX.

**M4701B** FOR LOUDSPEAKERS OF 300W MAX.

The burnout of a power amplifier's output stage nearly always results in a dangerous direct current to the loudspeaker's terminals. In turn, this results in a loudspeaker burnout. This protection unit requires no additional power supply and is simply mounted between the loudspeaker leads in the speaker housing. The speakers will be disconnected immediately when a direct current is present. Ideally suited for in-car use. Also available in kit version: K4701.

- input voltage: 90Vdc max.
- contact current: 10A max.
- safety voltage: 10Vdc min.
- dimensions: 40 x 67mm
- recommended housing: G410



## AUDIO POWER METER

**M4307A** RATINGS : 0.15W TO 200W / 8 OHM

LED scale:  
0.15 - 0.5 - 1 - 2 - 5 - 10 - 25 - 50 - 100 - 200Wrms

**M4307B** RATINGS : 0.3W TO 400W / 4 OHM

LED scale:  
0.3 - 1 - 2 - 4 - 10 - 20 - 50 - 100 - 200 - 400Wrms

**M4307C** RATINGS : 5W TO 1000W / 8 OHM

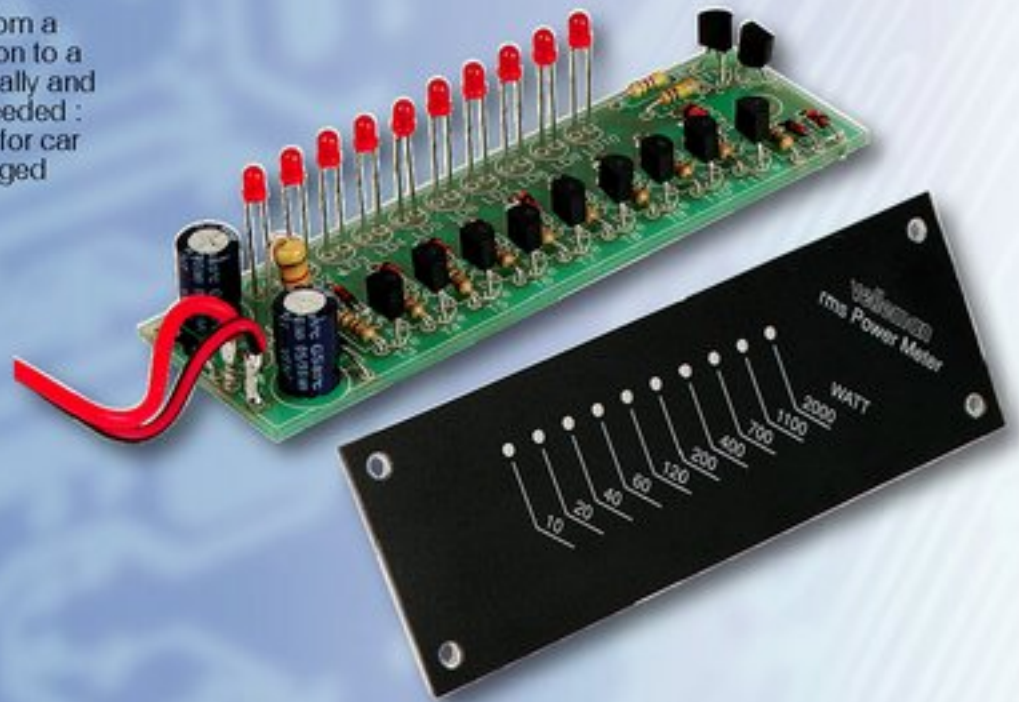
LED scale:  
5 - 10 - 20 - 30 - 60 - 100 - 200 - 350 - 550 - 1000Wrms

**M4307D** RATINGS : 10W TO 2000W / 4 OHM

LED scale:  
10 - 20 - 40 - 60 - 120 - 200 - 400 - 700 - 1100 - 2000Wrms

This unit allows instant visualisation of signal levels coming from a speaker output source. A special input allows direct connection to a speaker output. The unit can be installed horizontally or vertically and is easy to build into a speaker cabinet. No power supply is needed : simply connect it to the speaker output of any amplifier. Ideal for car audio systems and PA systems. Can also be used with a bridged power amplifier.

- input sensitivity:
  - low-power mode: 1.1Vrms min.
  - high power mode: 130V peak
- current consumption: 25mA (at full scale)
- luminous intensity: 8 to 20mCd/led
- dimensions: 120 x 40 x 28mm



## ELECTRONIC CHRISTMAS TREE

**MMK100**

Never was Christmas so congenial ! 16 blinking LEDs. Also available in kit version: MK100

- very low power consumption: max. 4mA
- power supply: 9V battery (not incl.)
- dimensions: 60 x 100 x 25mm (2.4" x 3.9" x 1.0")

## RIDING SANTA

**MMK116**

126 LED multicolour animated Xmas gadget. No need to remove battery when using external supply. 12V operation possible for use in cars, vans, trucks. On/off switch included. Also available in kit version: MK116.

- power supply: 9 to 12VDC or 9V alkaline battery (not incl.)
- dimensions: 80 x 145mm (3.2" x 5.7")

## DE LUXE XMAS TREE

**MMK117**

Beautiful tree consisting of 134 LEDs. 18 randomly blinking candles. No need to remove battery when using external supply. 12V operation possible for use in cars, vans, trucks. On/off switch included. Also available in kit version: MK117.

- power supply: 9 to 12VDC or 9V alkaline battery (not incl.)





## VELLEMAN HOME AUTOMATION SYSTEM

**Flexibility combined with simple wiring are the key points of this system.**

**One 4 wire low voltage loop cable connects all your input and output modules, resulting in a full two way control system.**

**Each input module can handle up to 8 buttons, each button can control from 1 to more then 200 output modules!**

**Simply put; you can teach 1 button to turn "off" or "on" all you appliances and lights.**

**A LED indication in or next to the control push button gives feedback on the output status.**

### Some features:

- Learn function for each push button (manual learning)
- Possibility to control / configure and monitor the system using PC connection
- Power fail safe
- Timer function on relay output modules (example: hold down the push button for at least 1 second to engage the timer function)

### VELBUS:

2-wire communication for VELBUS data and 2 wires for power.

Data transfer: 16,6Kbit/s.

Serial data protocol: CAN (Controller Area Network)

Short circuit-proof (towards negative or positive of power)

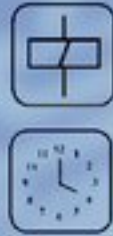
Self-restoring after 25 seconds with bus error

**More modules to come !!!  
See [www.velbus.be](http://www.velbus.be)**





**4-CHANNEL RELAY MODULE**  
VMB4RY



**BLIND CONTROL MODULE**  
VMB1BL



**2-CHANNEL BLIND CONTROL MODULE**  
VMB2BL



**DIMMER MODULE**  
VMB1DM



**RELAY MODULE**  
VMB1RY



**8-CHANNEL PUSH BUTTON MODULE**  
VMB8PB



**6-CHANNEL INPUT MODULE**  
VMB6IN



**SERIAL INTERFACE**  
VMB1RS



**POWER SUPPLY MODULE**  
VMB3PS





## RELAY MODULE

### VMB1RY

- Suppressed relay contacts: 5A/230Vac max.
- 10 different operation modes (adjustable through hexadecimal rotary switch): Moment control • ON/OFF • Start/stop timer • Staircase • Non-retriggerable timer • turn-on delay • blinking timer • Cut-off delay • Start timer by releasing push button • 2-way timer
- 16 possible time settings: Moment • 5/10/15/30s • 1/2/5/10/15/30 min • 1/2/5 hours • 1 day • ON/OFF
- 9 possible time settings for timer2: 5min • 10min • 15min • 30min • 1u • 2u • 5u • 1dag • ON/OFF
- 8 different control possibilities:
- Storage for 7 different push buttons per control group.
- 248 possible addresses (adjustable through hexadecimal rotary switch)
- Standard DIN-rail housing (2 modules)



## 4-CHANNEL RELAY MODULE

### VMB4RY

- 4 Independent suppressed relay outputs: 5A/230Vac max.
- 10 Operation modes independently adjustable per channel: Moment control • ON/OFF control • Start/stop timer • Staircase lighting • Non-retriggerable timer • turn-on delay • blinking timer • Cut-off delay • Start of timer by releasing the push button • 2-way timer (short push starts timer/ long push starts timer2)
- 16 possible time settings (adjustable through hexadecimal rotary switch): moment • 5/10/15/30sec • 1/2/5/10/15/30min • 1/2/5u • 1day • ON/OFF
- 9 possible time settings for timer2: 5/10/15/30min • 1/2/5u • 1day • ON/OFF
- 8 different control possibilities
- Storage space for 15 different push buttons per control group for each channel.
- 224 possible addresses
- Standard DIN-rail housing (4 modules)



## BLIND CONTROL MODULE

### VMB1BL

- Can be used to control an electric roll-down shutter, sunblind ...
- Suppressed relay contacts: 5A/230Vac max.
- 4 possible switching times (through 2-pole tumble switch): 15s • 30s • 1min • 2 min
- Storage for 12 different immediately push up buttons, 12 different immediately push down buttons, 12 different push up buttons and 12 different push down buttons
- 252 possible addresses (adjustable through hexadecimal rotating switch)
- Standard DIN-rail housing (2 modules)



## 2-CHANNEL BLIND CONTROL MODULE

### VMB2BL

- Can be used to power two electric controlled roll-down shutters, sunblinds ...
- Suppressed relay contacts: 5 A/230 Vac max.
- 4 possible switching times (through 4-pole tumble switch) per channel: 15s • 30s • 1min • 2 min
- Storage for 12 different immediately push up buttons, 12 different immediately push down buttons, 12 different push up buttons and 12 different push down buttons for each channel.
- 248 possible addresses (adjustable through hexadecimal rotary switches)
- Standard DIN-rail housing (4 modules)



## DIMMER MODULE

### VMB1DM

- Fit for light bulbs, halogen on mains and low mains halogen in combination with a dimmable transformer
- Mains pollution (EMI) conform EN55015
- Required mains voltage: 100-125V/60Hz or 220-240V/50Hz
- Maximum load: 300W at 230V or 150W at 115V
- Dimming from 0 to 100% in ca. 4 seconds
- 9 different operation modes (adjustable through hexadecimal rotary switch): • Moment control • Start/stop timer • Staircase lighting • Dimmer • Dimmer with memory function • Multi-position dimmer • Slow-on dimmer • Slow-off dimmer • Slow on-off dimmer
- 16 possible time settings: moment • 5/10/15/30s • 1/2/5/10/15/30min • 1/2/5u • 1day • ON/OFF
- 7 different control possibilities.
- 248 possible addresses
- Standard DIN-rail housing (2 modules)



## SERIAL INTERFACE

### VMB1RS

- VELBUS system control through a computer.
- Processing VELBUS messages on the computer.
- Full duplex RS232C communication with PC.
- Galvanic isolation between computer and VELBUS system.
- LED indicators for: • Power supply • Data reception and transmission to computer • Data reception and transmission through VELBUS.



## 6-CHANNEL INPUT MODULE

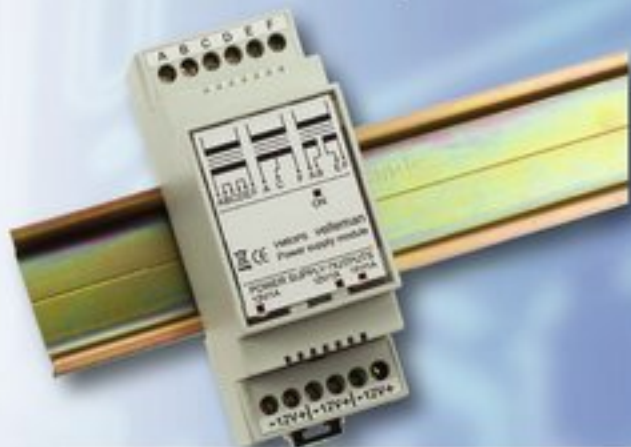
### VMB6IN

- Can be used to connect push buttons, door or window contacts, movement detector relay contacts, open collector outputs ... on the VELBUS system.
- Contacts may be placed on a long distance from the module.
- Up to 6 inputs.
- Input debounce: 65ms.
- Possibility for each input to react only when they are closed for 1,2 or 3 seconds.
- LED indication per input.
- 252 possible addresses (adjustable through hexadecimal rotary switch)
- Standard DIN-rail housing (2 modules)

## POWER SUPPLY MODULE

### VMB3PS

- Three 12V/1A DC outputs for powering VELBUS modules
- Short circuit-safe
- Required input tension: 12VAC/3A
- Standard DIN-rail housing (2 modules)



## 8-CHANNEL PUSH BUTTON MODULE

### VMB8PB

- Can be used to connect any type of push button on the VELBUS.
- Up to 8 push buttons connectable.
- Key debounce: 65ms.
- Possibility for each push button to react only to long press (1,2 or 3s.)
- LED indications per push button.
- 252 possible addresses



## ALPHABETICAL INDEX

APS230.....	p.9	K5600r.....	p.33	K8068.....	p.58	MK147.....	p.67
HPS10.....	p.12	K6000.....	p.34	K8070.....	p.71	MK148.....	p.67
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