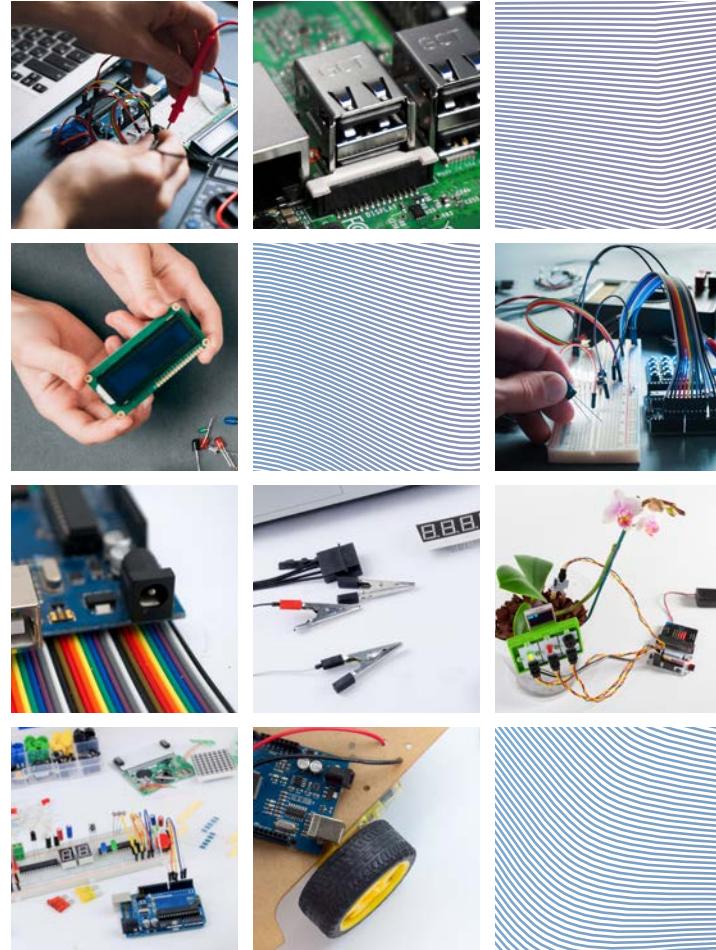


EN



velleman®

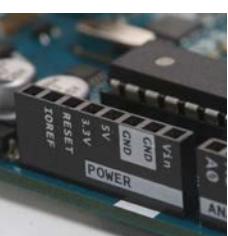
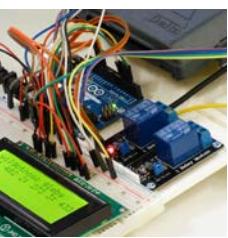


CATALOG

DEVELOPMENT BOARDS AND ACCESSORIES

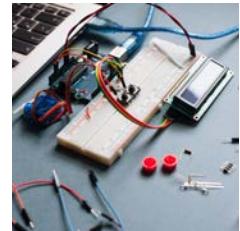
DEVELOPMENT BOARDS AND ACCESSORIES

- 1. Arduino®**
 - 1.1 Boards
 - 1.2 Shields
 - 1.3 Kits
 - 1.4 Sensors
 - 1.5 Interfaces
 - 1.6 Accessories
 - 1.7 Brightdots
- 2. Raspberry Pi®**
- 3. MICRO:BIT® - BBC**
- 4. General accessories**



ARDUINO® BOARD

The Arduino® board, a credit card sized computer or micro controller, can receive inputs and turn them into outputs. An input can be the light on a sensor, the sound through a microphone or even a text message whereas the output can be lighting an LED, activating a buzzer, rotating a motor and so on.



ARDUINO® SOFTWARE

You can tell the Arduino® what it needs to do by writing a set of instructions in the Arduino® programming language and by using the Arduino® development environment. Don't worry about your first Arduino® experience, you can find great tutorials and starter projects on arduino.cc!

ARDUINO® PRODUCTS

Arduino® has different boards, modules, shields and kits that fit the needs of every kind of makers. Be sure to check out each one in our Arduino® product range!

COMMUNITY

Because the Arduino® platform is accessible and open-source, a lot of different makers around the world have formed a community that shares its knowledge and projects that can inspire you.

ARDUINO®

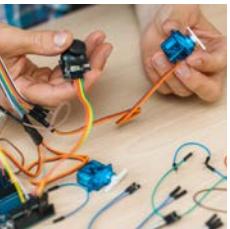
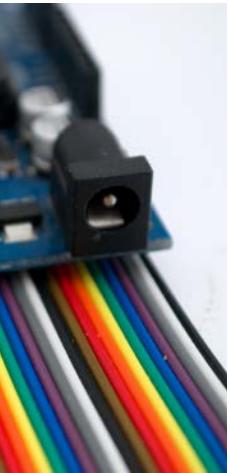
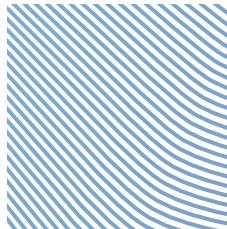
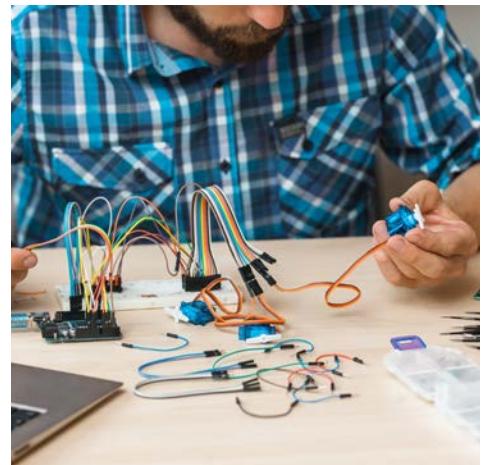
Velleman IO specifically focusses on bringing you unique and state-of-the-art Arduino® compatible shields, sensors and other fun modules. These modules will allow you to enhance your Arduino® in a safe and easy way while communicating with other devices, the environment or whatever you want to achieve with your projects.

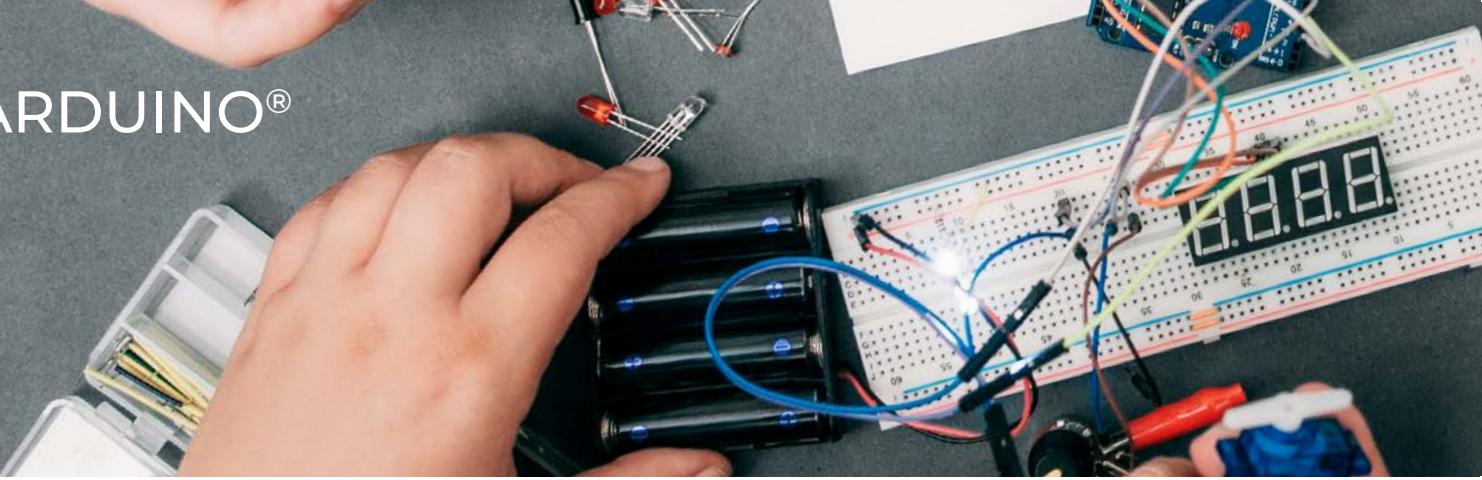
```
Bl-4 (Arduino IDE)
File Edit Sketch Tools Help
...
// Click example code L8 on the project menu.
http://www.arduino.cc/en/Tutorial/L8

// If the setup function runs once when you power up the Arduino
// initialize digital pin LED_BUILTIN as an output-
// module(LED_BUILTIN, OUTPUT);

// The tone function runs over and over again forever
void loop() {
  digitalWrite(LED_BUILTIN, HIGH); // turns the LED on
  delay(1000); // wait one second
  digitalWrite(LED_BUILTIN, LOW); // turns the LED off
  delay(1000); // wait one second
}


```





ARDUINO® COMPATIBLE BOARDS

UNO

ATMEGA328 UNO DEVELOPMENT BOARD

microcontroller: ATmega328 · operating voltage: 5 VDC · input voltage (recommended): 7-12 VDC · input voltage (limits): 6-20 VDC · digital I/O pins: 14 (of which 6 provide PWM output) · analogue input pins: 6 · DC current per I/O pin: 40 mA · DC current for 3.3V pin: 50 mA · flash memory: 32 kB (ATmega328) of which 0.5 kB used by bootloader · SRAM: 2 kB (ATmega328) · EEPROM: 1 kB (ATmega328) · clock speed: 16 MHz · length: 68.6 mm · width: 53.4 mm · weight: 25 g · 100% compatible with Arduino® Uno

[VMA100](#)



5 410329 656430

MEGA

ATMEGA2560 MEGA DEVELOPMENT BOARD

microcontroller: ATmega2560 · operating voltage: 5 VDC · input voltage (recommended): 7-12 VDC · input voltage (limits): 6-20 VDC · digital I/O pins: 54 (of which 15 provide PWM output) · analogue input pins: 16 · DC current per I/O pin: 40 mA · DC current for 3.3V pin: 50 mA · flash memory: 256 kB of which 8 kB used by bootloader · SRAM: 8 kB · EEPROM: 4 kB · clock speed: 16 MHz · length: 112 mm · width: 55 mm · weight: 62 g · 100% compatible with Arduino® MEGA2560

[VMA101](#)



5 410329 657000

4 LEDs

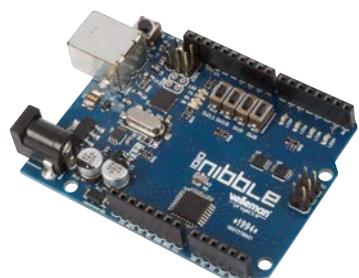
ASSEMBLED VELLEMAN NIBBLE MODULE

fully Arduino® compatible · assembled SMD components · 4 built in buttons (do not block the Arduino® pins) · 4 built in blue LEDs (do not block the Arduino® pins) · preprogrammed with working memory game

[VMA0](#)



4 BUTTONS



5 410329 661182

solder

VELLEMAN NIBBLE KIT

fully Arduino® compatible · assembled SMD components · 4 on-board push buttons · 4 on-board LED's · preprogrammed with working memory game

[KAO](#)



solder



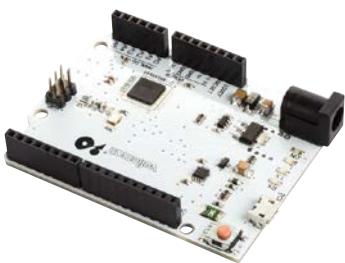
5 410329 659844



LEONARDO

ATMEGA32U4 LEONARDO DEVELOPMENT BOARD

microcontroller: ATmega32u4 · operating voltage: 5 VDC · input voltage (recommended): 7-12 VDC · input voltage (limits): 6-20 VDC · digital I/O pins: 20 · analogue input pins: 12 · PWM channels: 7 · DC current per I/O pin: 40 mA · DC current for 3.3 V pin: 50 mA · flash memory: 32 kB (ATmega32u4) of which 4 kB used by bootloader · SRAM: 2.5 kB (ATmega32u4) · EEPROM: 1 kB (ATmega32u4) · clock speed: 16 MHz · length: 68.6 mm · width: 53.3 mm · weight: 20 g · 100% compatible with Arduino® LEONARDO

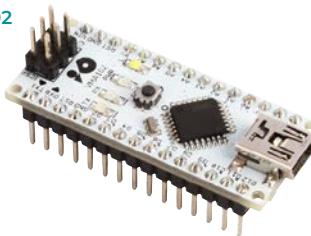
VMA103

5 410329 657024

NANO

ATMEGA328 NANO DEVELOPMENT BOARD

microcontroller: Atmel ATmega168 or ATmega328 · operating voltage: 5 VDC · input voltage (recommended): 7-12 VDC · input voltage (limits): 6-20 VDC · digital I/O pins: 14 (of which 6 provide PWM output) · analogue input pins: 8 · DC current per I/O pin: 40 mA · flash memory: 16 kB (ATmega168) or 32 kB (ATmega328) · SRAM: 1 kB (ATmega168) or 2 kB (ATmega328) · EEPROM: 512 bytes (ATmega168) or 1 kB (ATmega328) · clock speed: 16 MHz · length: 45 mm · width: 18 mm · weight: 5 g · 100% compatible with Arduino® NANO 3.0

VMA102

5 410329 657017

**ATMEGA32U4 WEARABLE DEVELOPMENT BOARD**

microcontroller: ATmega32U4 · operating voltage: 2.7 - 5.5 VDC · input voltage: 2.7 - 5.5 VDC · digital I/O pins: 9 · PWM channels: 4 · analogue input channels: 4 · DC current per I/O pin: 40 mA · flash memory: 32 kB (of which 4 kB used by bootloader) · SRAM: 2.5 kB · EEPROM: 1 kB · clock speed: 8 MHz · diameter: 50 mm · 100% compatible with Arduino® Lilypad

VMA105

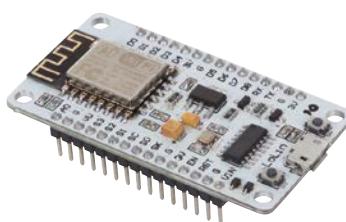
/500



5 410329 680725

NODEMCU V2 LUA BASED**ESP8266 DEVELOPMENT BOARD**

operating voltage: 5 VDC (USB) · dimensions: 5.8 x 3.2 x 1.2 cm · weight: 12 g · low-cost WiFi solution programmable with the Lua scripting language · on-board USB-serial adaptor · PCB antenna (no external antenna required) · 10 GPIO pins, each GPIO can be PWM, I2C, 1-wire · breadboard compatible · powered via microB USB

VMA107

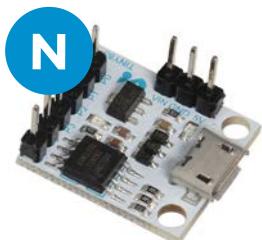
/500



5 410329 690267

ATTINY85 ARDUINO® COMPATIBLE MICRO DEVELOPMENT BOARD

working voltage: 1.8 - 5.5 VDC · dimensions: 17.5 x 19 mm · support for the Arduino® IDE · power via USB or external source (pinheader) · onboard 5 V regulator · built-in USB · 6 I/O pins · 8k flash memory (about 6k after bootloader) · I2C and SPI · PWM on 3 pins · ADC on 4 pins · power LED and LED on P1

VMA108

/400



5 410329 690250

TEENSY V3.2 - 32 BIT ARDUINO® COMPATIBLE MICROCONTROLLER BOARD

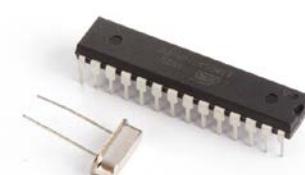
32 bit ARM Cortex-M4 72 MHz CPU (M4 = DSP extensions) · 256K flash memory, 64K RAM, 2K EEPROM · 21x high resolution analog inputs (13 bits usable, 16 bit hardware) · 34x digital I/O pins (21 shared with analog) · 12 PWM outputs · 12-bit DAC output · 8 timers for intervals/delays, separate from PWM · USB with dedicated DMA memory transfers · CAN bus · 3 UARTs (serial ports) · SPI, I2C, I2S, IR modulator · I2S (for high quality audio interface) · real time clock (with user-added 32.768 crystal and battery) · 16 general purpose DMA channels (separate from USB) · touch sensor inputs · dimensions: 35.6 mm x 17.8 mm

TEENSY3.2

/75



5 410329 632526

ATMEGA32P MCU IC WITH ARDUINO® UNO BOOTLOADER AND 16 MHZ CRYSTAL**VMA416**

5 410329 657468



ARDUINO® COMPATIBLE SHIELDS

STEM SHIELD FOR ARDUINO®

temperature sensor · light sensor · 7-segment display · 2 stoplight simulations (6 LEDs) · 4 tactile buttons · 1 slide switch · 1 potentiometer · 1 sounder · 1 servo connection · 1 infrared LED · all modules are 'disconnectable' so the Arduino® pins can be used freely · a 'line follower' sensor can be made with the IR LED and light sensor · the 7- segment and line follower module can be separated from the main PCB · fully Arduino® compatible

KAEDU

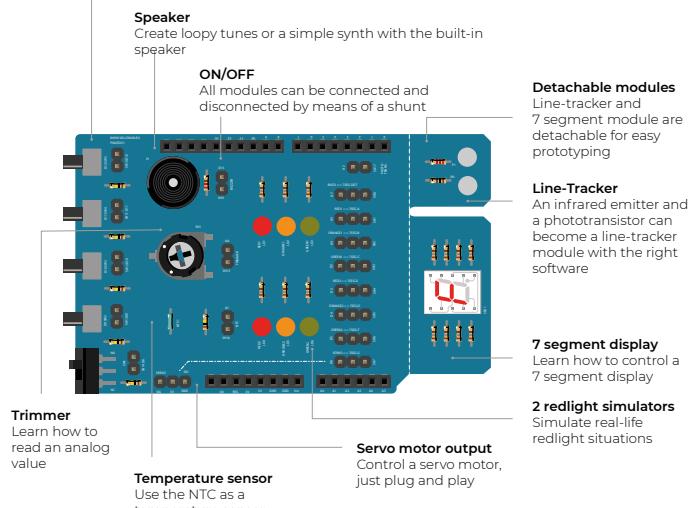


5 410329 659837

Use the KAEDU: STEM shield to explore the world of Arduino®, sketches, electronics and many more. This is the perfect beginners shield to use when following a STEM education.

Buttons and switch

4 Tactile buttons and a switch to experiment with



RGB SHIELD FOR ARDUINO®

2 A load via Vin or 6 A load via external power · 12 or 24 V external power supply · uses pin 3, 5, 6 PWM on an Arduino® UNO board · dimensions: 68 x 53mm / 2.67 x 2.08" · downloadable example sketch · stackable design: the shield can be stacked with other shields · large user community · requires 1 Arduino® UNO (not included)

KA01



see also
VMA01
(p.10)

/20

5 410329 555665

AUDIO SHIELD FOR ARDUINO®

audio sample frequency: 8 kHz · uses pin 10 on an Arduino UNO® board as a Chip Select · uses the ICSP pins on an Arduino® as a serial connection to the shield to free up I/O pins · memory write up to 100.000 X · dimensions: 71 x 53mm / 2.79 x 2.08" · 60 second recording time · start playback, record,... via on-board buttons or via Arduino® UNO · playback via a speaker or a line output · downloadable sample sketch and library · stackable design: the shield can be stacked with other shields · large user community · requires 1 Arduino® UNO (not included)

KA02



/20

5 410329 555832

MOTOR & POWER SHIELD FOR ARDUINO®

2.5 A (max) output current (each channel)
· 50 V (max) external power supply input
· used pins on an Arduino® UNO board can be selected to accommodate for other stacked shields · dimensions: 68 x 53mm / 2.67 x 2.08" · 2 channels · choose between an external or internal (Vin) power supply · based on the dual full bridge driver L298P · downloadable sample sketch · stackable design: the shield can be stacked with other shields · large user community · requires 1 Arduino® UNO (not included)

KA03



/20



5 410329 555917

ETHERNET SHIELD FOR ARDUINO®

data rates up to 10 Mbps · integrated MAC controller · 8 kB Transmit / Receive Packet Dual Port Buffer · the MAC controller supports both Unicast, Multicast and Broadcast packets, has a programmable (up to 64-byte) pattern matching feature within a packet at user defined offset and programmable wake-up on multiple packet formats (Magic Packet, Unicast, Multicast, Broadcast, specific packet match or any packet) · uses pin 10 and 2 on an Arduino UNO® board. It also uses the ICSP connector as a serial connection to the shield to free up I/O pins · dimensions: 68 x 53mm / 2.67 x 2.08" · based on a Microchip ENC28J60 chip · downloadable sample sketches and library · stackable design: the shield can be stacked with other shields · large user community · requires 1 Arduino UNO® (not included)

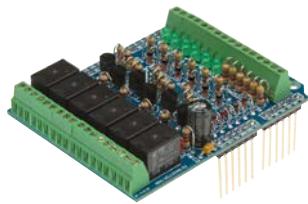
KA04



I/O SHIELD FOR ARDUINO®

1A (max) load per output · 30 V max. per output · uses pin 8 to 13 as outputs, pin A0 to A5 as analog inputs, and pin 2 to 7 as digital inputs · dimensions: 68 x 53mm / 2.67 x 2.08" · 6 relay outputs: 0.5A max 30V (*) · 6 analog inputs · 6 digital inputs · downloadable sample sketch · stackable design: the shield can be stacked with other shields · large user community · requires 1 Arduino UNO® (not included)

KA05



/20



5 410329 556778

LCD SHIELD FOR ARDUINO®

supplied with 20 character / 4 lines display with white backlight · contrast adjust trimmer · backlight on/off switch · reset button · 3 user configurable pushbuttons (3 digital inputs / 1 analog input) · dimensions: 68 x 53mm / 2.67 x 2.08" · for Hitachi HD44780 or compatible LCDs · requires 1 Arduino UNO® (not included) · stackable design: the shield can be stacked with other shields · included: Negative Blue 20 x 4 Character LCD Module with White Side LED Backlight

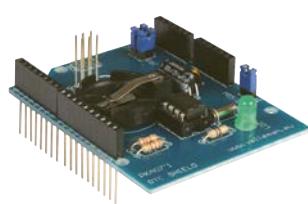
KA06



RTC SHIELD FOR ARDUINO®

I2C interface · accuracy: 20ppm (depends on crystal) · power consumption: 1.5mA with backup battery holder (500nA when running on battery) · dimensions: 68 x 53mm / 2.67 x 2.08" · based on Maxim-Dallas DS1307 IC · counts seconds, minutes, hours, date of month, day of the week, year and leap-year · 12 or 24h system selectable · AM/PM indication · large user community · requires 1 Arduino UNO® (not included) · stackable design: the shield can be stacked with other shields

KA07



/20

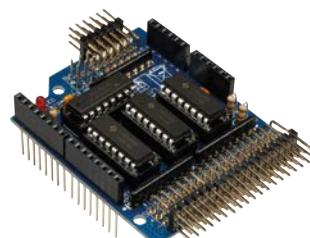


5 410329 593117

ANALOG INPUT EXTENSION SHIELD FOR ARDUINO®

analog inputs: 0 - 5 VDC · uses pins: 5, 6, 7 and A0 on Arduino UNO® board · dimensions: 54 x 66 mm (2.1" x 2.6") · 24 analog inputs · uses only 4 I/O lines · stackable design · complete with library and examples · works with Arduino UNO® and compatible boards

KAT2

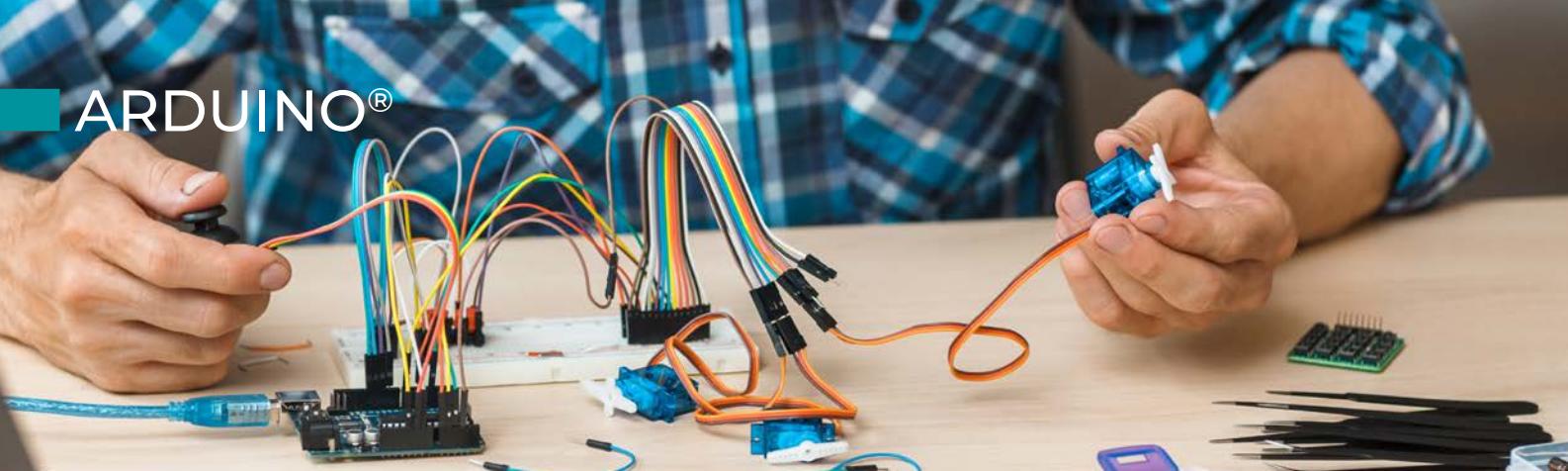


/20



5 410329 615413

ARDUINO®



RGB SHIELD FOR ARDUINO®

2 A load via Vin or 6 A load via external power · 12 or 24 V external power supply · uses pin 3, 5, 6 PWM on an Arduino® UNO board · dimensions: 75 x 55 x 25 mm / 2.95 x 2.16 x 0.98" · downloadable example sketch · stackable design: the shield can be stacked with other shields · large user community · requires 1 Arduino® UNO (not included)

VMA01



UNO™

see also
KA01
(p.8)



5 410329 558574

AUDIO SHIELD FOR ARDUINO®

audio sample frequency: 8 kHz · uses pin 10 on an Arduino® UNO board as a Chip Select · uses the ICSP pins on an Arduino® as a serial connection to the shield to free up I/O pins · memory write up to 100.000 X · dimensions: 80 x 55 x 30 mm / 3.15 x 2.16 x 1.18" · 60 second recording time · start playback, record,... via on-board buttons or via Arduino® UNO · playback via a speaker or a line output

VMA02



LINE
SPEAKER
INPUT

LINE
SPEAKER
OUTPUT

UNO™

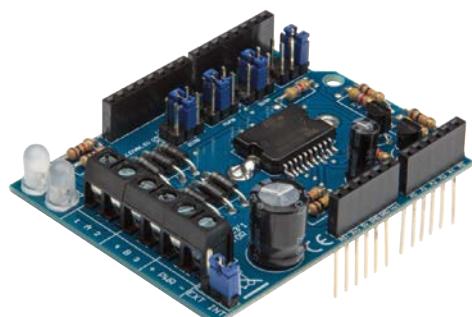


5 410329 558581

MOTOR & POWER SHIELD FOR ARDUINO®

2.5 A (max) output current (each channel) · 50 V (max) external power supply input · used pins on an Arduino® UNO board can be selected to accommodate for other stacked shields · dimensions: 75 x 55 x 30 mm / 2.95 x 2.16 x 1.18" · 2 channels · choose between an external or internal (Vin) power supply · based on the dual full bridge driver L298P · downloadable sample sketch · stackable design: the shield can be stacked with other shields · large user community · requires 1 Arduino® UNO (not included)

VMA03



5 410329 558598

ETHERNET SHIELD FOR ARDUINO®

data rates up to 10 Mbps · integrated MAC controller · 8 kB Transmit / Receive Packet Dual Port Buffer · the MAC controller supports both Unicast, Multicast and Broadcast packets, has a programmable (up to 64-byte) pattern matching feature within a packet at user defined offset and programmable wake-up on multiple packet formats · uses pin 10 and 2 on an Arduino® UNO board. It also uses the ICSP connector as a serial connection to the shield to free up I/O pins · dimensions: 80 x 55 x 30 mm · based on a Microchip ENC28J60 chip

VMA04



UP TO
10 Mbps

UNO™



5 410329 558604

I/O SHIELD FOR ARDUINO®

1A (max) load per output · 30 V max. per output · uses pin 8 to 13 as outputs, pin A0 to A5 as analog inputs, and pin 2 to 7 as digital inputs · dimensions: 70 x 55 x 30 mm / 2.75 x 2.16 x 1.18" · 6 relay outputs: 0.5A max 30V (*) · 6 analog inputs · 6 digital inputs · downloadable sample sketch · stackable design: the shield can be stacked with other shields · large user community · requires 1 Arduino® UNO (not included)

VMA05



101010
0101010
6 INPUTS



UNO™

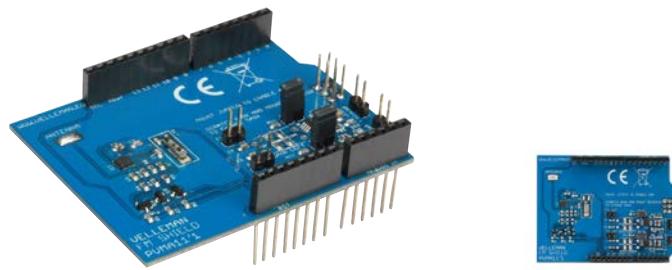


5 410329 558611

STEREO FM RADIO SHIELD FOR ARDUINO®

interface: I2C · power / logic level: 3.3 V · sensitivity: 1.7 μ V_{emf}
· max. output power: 2.8 W (4 Ohm) or 1.6 W (8 Ohm) · default gain: 18 dB (8 x) (adjustable) · THD: 0.02 % (1 W 8 Ohm / 1 kHz) · S/N ratio: 98 dB (1.4 W / 8 Ohm) · dimensions: 68 x 54 x 23 mm · worldwide FM support · RDS/RBDS support · volume control · automatic frequency control · automatic gain control · Arduino® library available · class D 2.8 W amplifier

VMA11



ARDUINO®
LIBRARY

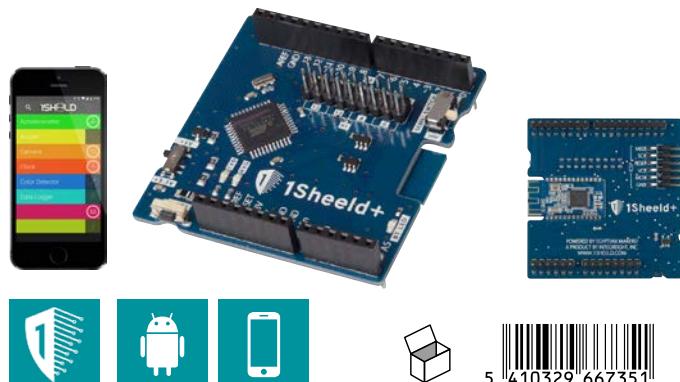


5 410329 615390

RECONFIGURABLE ARDUINO® SHIELD

1Sheeld is a new easily configured shield for Arduino®. It is connected to a mobile app that allow the usage of all of Android smartphones' capabilities such as LCD Screen, Gyroscope, Switches, LEDs, Accelerometer, Magnetometer, GSM, Wi-Fi, GPS, etc. into your Arduino® sketch. · dimensions: 2.25 x 2.125 x 0.75" · weight: 0.67 oz. (19 g) ·

VMA900

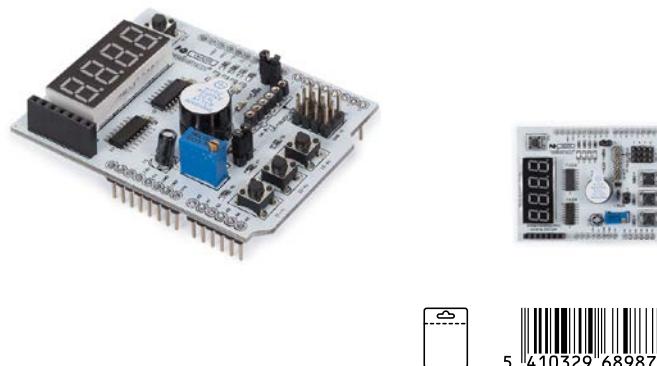


5 410329 667351

MULTI-FUNCTION SHIELD EXPANSION BOARD FOR ARDUINO®

dimensions: 69 x 54 x 11 mm · weight: 27 g · 4 digit 7 segment LED display module · 4 x surface mount LEDs in a parallel configuration · 10 K adjustable precision potentiometer · 3 x independent push buttons · piezo buzzer · DS18B20 and LM35 interface · infrared receiver interface · serial interface header

VMA209

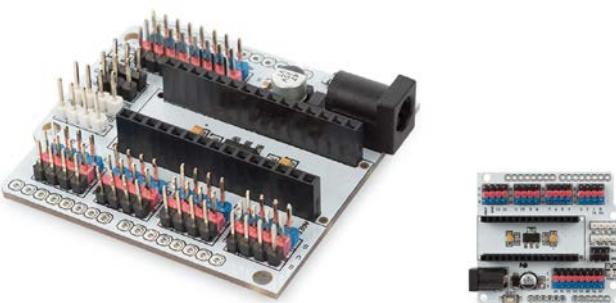


5 410329 689872

MULTIFUNCTION EXPANSION BOARD FOR ARDUINO® NANO/UNO

max. input voltage: 12 VDC · max. current: 1 A · DC connector: 5.5 / 2.1 mm · dimensions: 58 x 53 x 15 mm · weight: 20 g

VMA210

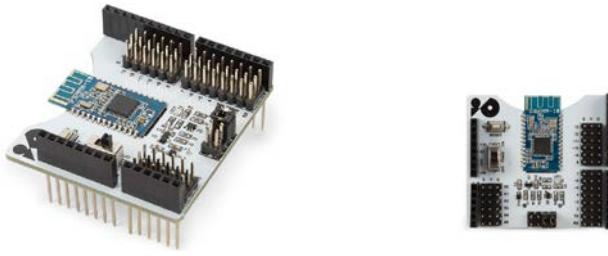


5 410329 703042

HM-10 WIRELESS SHIELD FOR ARDUINO® UNO

pin header spacing: 2.54 mm · Bluetooth® chip: Texas Instruments® CC2541 · USB protocol: USB V2.0 · working frequency: 2.4 GHz ISM band · modulation method: GFSK · transmission power: -23 dbm, -6 dbm, 0 dbm, 6 dbm, can be modified by AT command · sensitivity: -84 dBm at 0.1% BER · transmission rate: asynchronous 6K bytes · security: authentication and encryption · supporting service: central & peripheral UUID FFE0, FFE1 · power consumption: 400-800 μ A during standby, 8.5 mA during transmission · power supply shield: 5 VDC · power supply HM10: 3.3 VDC · dimensions: 54 x 48 x 23 mm

VMA338



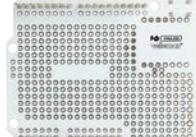
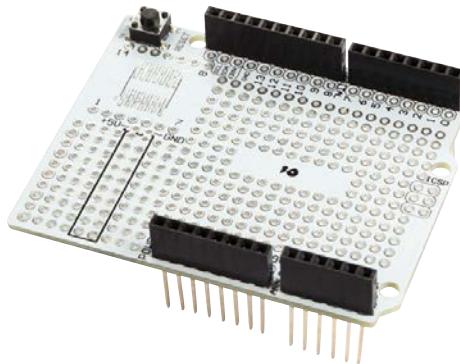
5 410329 703028

UNO™

ARDUINO® COMPATIBLE EXPANSION BOARD FOR ARDUINO® UNO R3

dimensions: 68 x 53 x 12 mm · with reset button · SOIC-14 breakout for surface mounted devices

VMA200

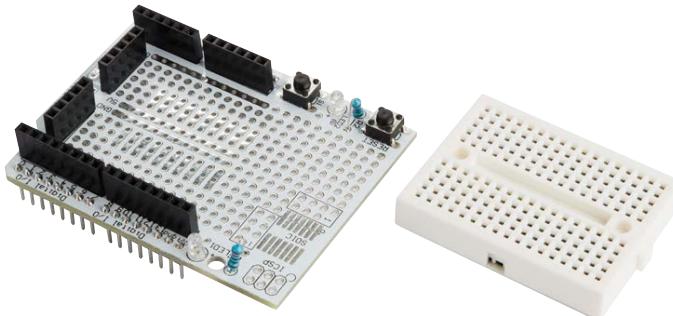


UNO™

PROTOSHIELD PROTOTYPING BOARD WITH MINI BREADBOARD FOR ARDUINO® UNO

· 1.0 Arduino® Pinout · reset button · free to use button + LED circuit · ICSP connector location · 14 pin SMD footprint · 20 pin through-hole footprint · 170 holes self-adhesive breadboard included · compatible with: Leonardo, Uno, Mega, Classic

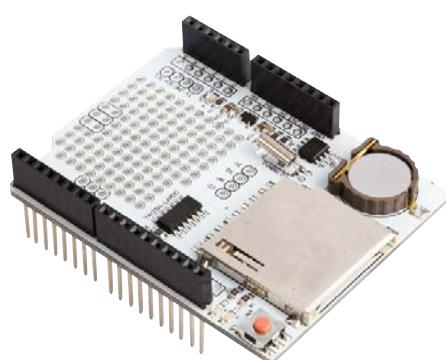
VMA201

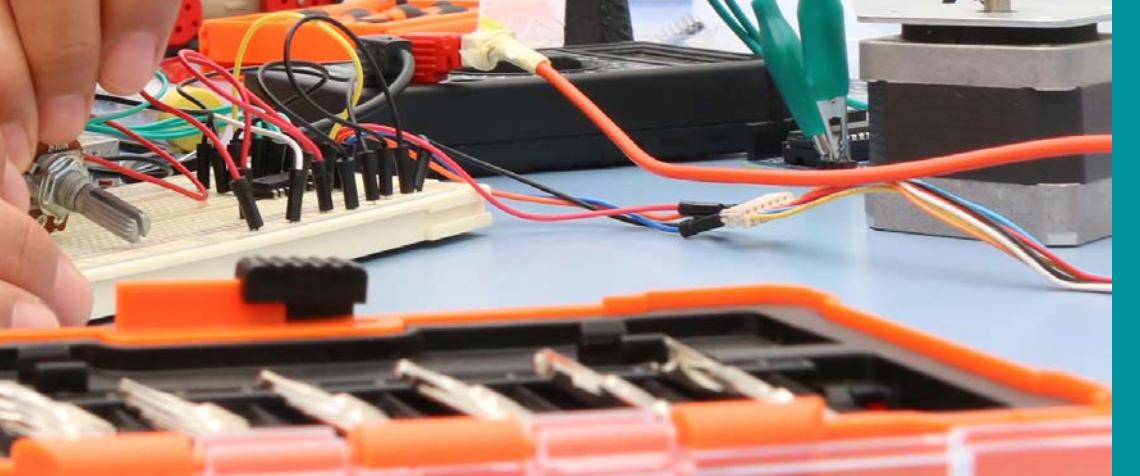


ARDUINO® COMPATIBLE DATA LOGGING SHIELD

back-up battery: CR1220 battery (incl.) · dimensions: 43 x 17 x 9 mm · stackable headers · reset button · prototyping area (102 solder pads) for soldering connectors, circuitry or sensors · back-up battery for RTC included · uses the Arduino SD and RTC libraries · with onboard 3.3 V regulator to run SD cards that require a lot of power

VMA202





16x2
CHAR

LCD & KEYPAD SHIELD FOR ARDUINO® - LCD1602

dimensions: 80 x 58 x 20 mm
• blue background / white
backlight • screen contrast
adjustment • uses 4 bit Arduino®
LCD library • reset button • the
Up, Down, Left, Right buttons
use only one analogue input

VMA203



5 410329 657062

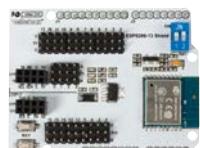
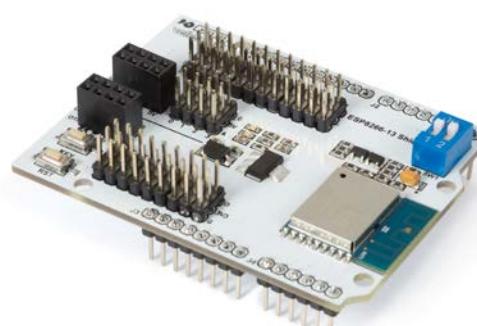


WIFI ESP8266 SHIELD

802.11 b / g / n wireless standards • STA / AP modes
support • TCP / IP protocol stack, One socket •
supports standard TCP / UDP server and client •
supports serial port baud rate configuration: 1200 /
2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 74800 /
115200 bps • supports serial data bits: 5 / 6 / 7 / 8 bits
• supports serial stop bits: 1 / 2 bit • pin-compatible
with Arduino® Uno, Mega • Arduino® pinout:
2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 11 / 12 / 13 • ESP8266 GPIO pinout:
0 / 2 / 4 / 5 / 9 / 10 / 12 / 13 / 14 / 15 / 16 / ADC / EN / * UART TX /
UART RX • KEY button: modes configuration • dual-
ports DIP switches: switching Arduino® and ESP8266
VMA205



5 410329 673819

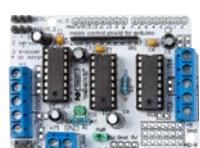
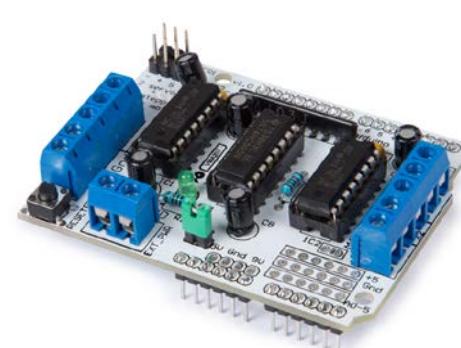


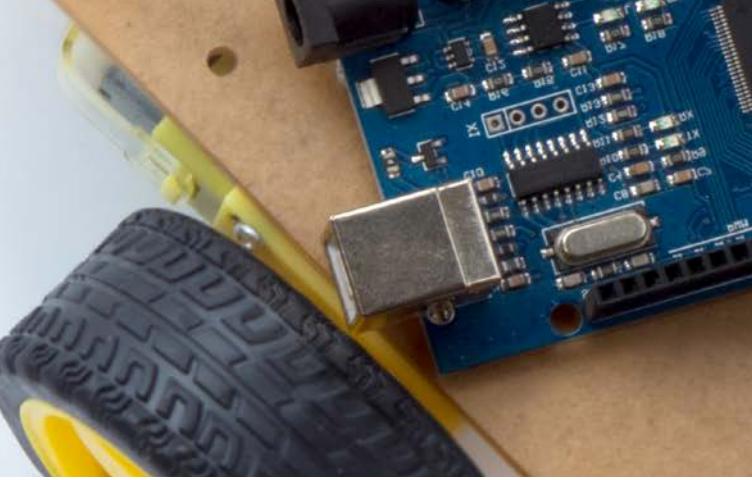
L293D MOTOR DRIVE EXPANSION SHIELD FOR ARDUINO®

dimensions: 6.8 cm x 5.5 cm x 2 cm • two L293D
motor driver chips • four H-bridges • 0.6 A
per bridge (1.2 A peak) • thermal shutdown
protection • internal kickback protection
diodes • up to 4 bi-directional DC motors •
up to 2 stepper motors • pull down resistors
to keep motors disabled during power-up •
separate logic and motor power connections
• terminal block connectors for motors and
power • motor voltages from 4.5 VDC to
16 VDC • 2 connections for 5 V hobby servos
VMA207



5 410329 680732





ARDUINO® COMPATIBLE KITS



KIT

BASIC ARDUINO® COMPATIBLE EXPERIMENTER'S KIT

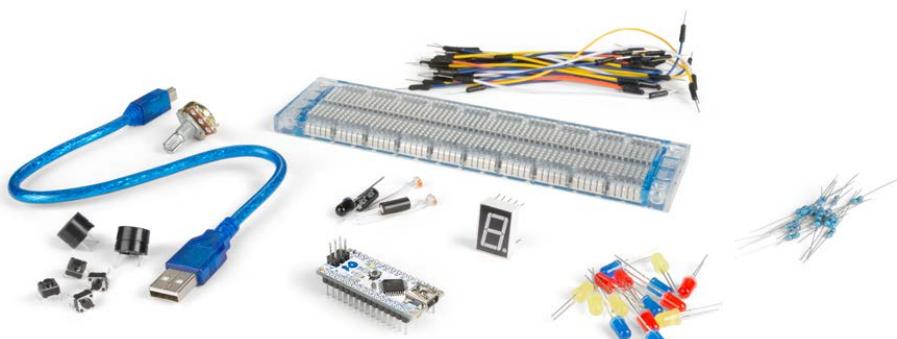
LEVEL

This basic kit includes: ATmega328 NANO development board (VMA102) · USB cable · 1x Breadboard · 30 x Breadboard jumper wire · 2 x Light Dependant Resistors · IR Remote Receiver · 4 x tactile Switches · 15 x LED (different colors) · 1x Seven segment display · 1x buzzer · 50K potentiometer · 2 x tilt switch · 10 x 220 Ohm resistors · 10 x 1k Ohm resistors

VMA504



5 410329 657512



KIT

DIY STARTER KIT FOR ARDUINO®

This basic kit includes: ATmega328 UNO DEVELOPMENT BOARD (VMA100) · 15 x LED · 8 x 220 Ohm resistor · 5 x 1K resistor · 5 x 10K resistor · 830 hole breadboard · RGB LED module (VMA318) · 4 x 4-pin Key switch · Active buzzer (VMA319) · Passive buzzer · 1838 IR Infrared 379KHz Receiver (VMA317) · Infrared remote control · infrared sensor diode · LM35 temperature sensor · 2 x Ball tilt switch · 3 x Photosensitive resistor LDR · 74HC595 Shift register · Battery holder for 6 AA battery's · 8*8 LED Matrix display · single digit 7 segment LED display · 4 digit 7 segment LED display · 30 x Breadboard jumper wire · USB cable

VMA501



5 410329 657482



KIT

BASIC DIY KIT WITH ATMEGA2560 FOR ARDUINO®

This kit includes: ATmega2560 MEGA DEVELOPMENT BOARD (VMA101) · 15 x LED (different colors) · 8 x 220 Ohm resistor (RA220E0) · 5 x 1K resistor (RA1K0) · 5 x 10K resistor (RA10K0) · 830 hole breadboard · 4 x 4-pin Key switch · Active buzzer (VMA319) · Passive buzzer · infrared sensor diode · LM35 temperature sensor (LM35DZ) · 2 x Ball tilt switch (similar to MERS4 & MERS5) · 3 x Photosensitive resistor LDR (similar to LDR04) · single digit 7 segment LED display · 30 x Breadboard jumper wire · USB cable

VMA502



5 410329 657499





LEVEL

KIT

ELECTRONIC PARTS PACK FOR ARDUINO®

breadboard · plastic plate · 30 x breadboard jumper wire · 40 x jumper pins · 38 x LED (different colours) · LED (RGB) · 4 x push buttons (different colours) · 10 x 10pF · 10 x 100pF · 5 x 100 μ F capacitor · trim potentiometer · 2 x LDR · 2 x diode · LM35 · photodiode · SN74HC595N · set resistors · servo motor · 8 segment displays · 8 x 8 LED dot display

VMA503



5 410329 657505



LEVEL



2 WHEEL DRIVE MOTOR CHASSIS ROBOTICS KIT

motor voltage: 5-10 VDC · pre-drilled mounting plates · one DC motor + gearbox per wheel

VMA500



5 410329 657475



ACCESSORIES KIT + CLEAR PLASTIC BOX

210 pcs. resistor set (47K, 4.7K, 100K, 10K, 1K, 1M, 100R) · 5 x red LED 5 mm · 5 x green LED 5 mm · 5 x yellow LED 5 mm · 4 x 50K potentiometer (K047AM) · 6 x key button 4-pin 12 x 12 mm · 9 x round cap for 4-pin key button · 6 x square cap for 4-pin key button · 4 x shim washer for potentiometer (12 x 12 x 0.3 mm) · 5 x nut for potentiometer (7 x 7 x 0.75 mm) · 2 x 40 pin 2.54 mm single row male pin header · plastic clear box 186 x 90 x 45 mm

VMA505



5 410329 672171



PROJECT HOLDER FOR ARDUINO® UNO DEVELOPMENT BOARD + BREADBOARD

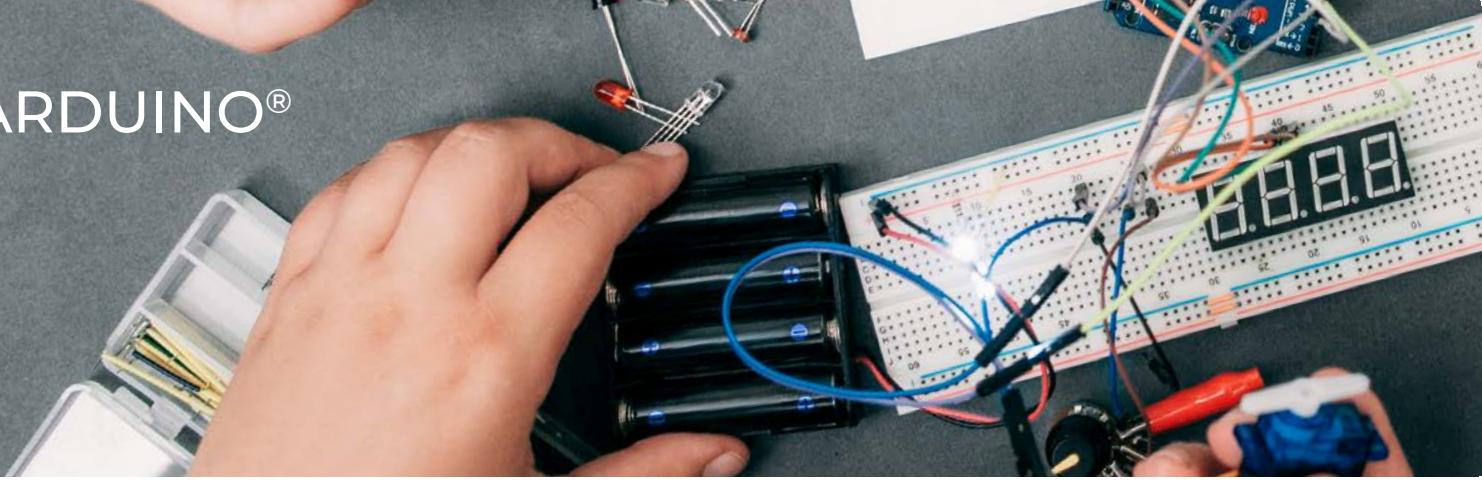
dimensions: 160 x 106 mm · max. breadboard size: 88 x 60 mm · weight: 50 g ·

VMA508



5 410329 672164





ARDUINO® COMPATIBLE SENSORS

ARDUINO® COMPATIBLE INFRARED TRANSMITTER MODULE (2 PCS)

max. current: 20 mA · connection: 3 pins, only GND (-) and S is used · weight: 2 g · dimensions: 35 x 15 x 8 mm · note: there is no current limiting resistor on the module ·

VMA316



5 410329 657246

ARDUINO® COMPATIBLE 1838 IR INFRARED 37.9 KHZ RECEIVER (2 PCS)

supply voltage: 3 to 5 VDC · max. supply current: 15 mA · B.P.F. center frequency: 37.9 KHz · dimensions: 28 x 15 x 10 mm · photo detector and preamplifier in one package · internal filter for PCM frequency · inner shield, good anti-interference ability · high immunity against ambient light · improved shielding against electric field disturbance · 3.0 V or 5.0 V supply voltage; low power consumption · TTL and CMOS compatibility

VMA317



5 410329 657253

3-AXIS DIGITAL ACCELERATION SENSOR MODULE - MMA8452

supply voltage: 1.95 V - 3.6 V · interface voltage: 1.6 V - 3.6 V · current consumption: 6 µA - 165 µA · +/-2g/-4g/-8g dynamically selectable full-scale · output data rates (ODR) from 1.56 Hz to 800 Hz · 12-bit and 8-bit digital output · I2C digital output interface (operates to 2.25 MHz with 4.7 kΩ pullup) · two programmable interrupt pins for six interrupt source · three embedded channels of motion detection · orientation (portrait/landscape) detection with set hysteresis · high pass filter data available real-time

VMA208

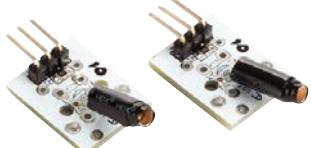


5 410329 683450

ARDUINO® COMPATIBLE VIBRATION / SHOCK SWITCH MODULE (2 PCS)

voltage: 5 VDC · connection: 3 pins, +(middle pin), ground and DO (data out) · dimensions: 25 x 15 mm · weight: 2 g ·

VMA312



5 410329 657208

ARDUINO® COMPATIBLE RGB LED MODULE (2 PCS)

voltage: 5 VDC · connection: 4 pin male header · pins: GND, RED, GREEN, BLUE · dimensions: 24 x 16 x 16 mm · weight: 2 g ·

VMA307



5 410329 657154

ARDUINO® COMPATIBLE 3 COLOUR RGB SMD LED MODULE (2 PCS)

power dissipation: R 60mW, G 95mW, B 95mW · peak forward current (0.1 ms pulse width): 100 mA for each colour · continuous forward current: 25 mA for each LED · max. reverse voltage: 5 V · operating temperature: -40 °C to 80 °C · dimensions: 28 x 15 x 5 mm · common: cathode (-) · attention: current has to be limited by using resistors ·

VMA318



5 410329 657260

ARDUINO® COMPATIBLE MICROPHONE SOUND SENSOR MODULE

voltage: 3.3 to 5 VDC · outputs: one analogue + one digital output · fixation: 1 mounting screw hole 3 mm · 2 indicator LEDs: 1 power indicator + 1 comparator output indicator · frequency response: 50 Hz - 20 KHz · impedance: 22 K Ohm · sensitivity: 48 - 66 dB · operating temperature: -40 to +85°C · dimensions: 44 x 15 x 10 mm · weight: 4 g ·

VMA309



5 410329 657178

ARDUINO® COMPATIBLE ACTIVE BUZZER MODULE (2 PCS)

operating voltage: 5 VDC · buzzer frequency: 1.5 to 2.5 KHz · connection: 3 pin, (-) and (S). (+) is not used · dimensions: 25 x 15 x 10 mm ·

VMA319



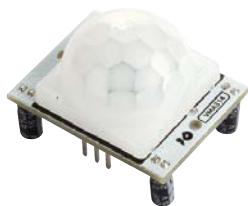
5 410329 657277



PIR MOTION SENSOR FOR ARDUINO®

voltage: 5 VDC · connection:
3 pin: GND, VCC and OUT ·
adjustments: sensitivity and delay
(by trimmer) · delay time: 0.3 to
18 s · output level: high = 3 V, Low
= 0 V · max. sensor distance: 7 m
· operating temperature: -15 to
+70°C · detection angle: 120 ° ·
dimensions: 32 x 24 x 25 mm ·

VMA314



5 410329 657222

HC-SR05 ULTRASONIC SENSOR

voltage: 4.5 to 5.5 VDC · sound
frequency: 40 KHz · measurement
resolution: 0.3 cm · measurement
angle: 15 ° · supply current: 10 to
40 mA · trigger pin format: 10 µs
pulse · connector: 5 pin male ·
detection distance: 2 to 450 cm
· dimensions: 49 x 22 x 15 mm ·

VMA306



5 410329 657147

ARDUINO® COMPATIBLE SOIL MOISTURE SENSOR + WATER LEVEL SENSOR MODULE

voltage: 5 VDC · dimensions:
65 x 20 mm · weight: 5 g ·

VMA303

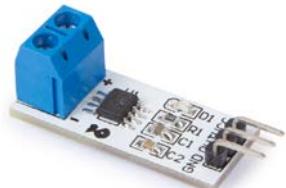


5 410329 657116

CURRENT SENSOR ACS712 MODULE - 20 A

supply voltage: 5 VDC ·
measurement range: -20 to +20 A
· output voltage: VCC/2 at no
load · scale factor: 100 mV per A
· dimensions: 31 x 13 x 12 mm ·

VMA323



5 410329 680756

BH1750 DIGITAL LIGHT INTENSITY SENSOR MODULE

supply voltage: 5 V · voltage:
3.3 VCC · operating temperature:
-40°C - +85°C · SDA sink current:
7 mA · power dissipation: 260 mW
· dimensions: 20 x 30 mm

VMA341



5 410329 702984

UV LIGHT SENSOR GUVA- S12SD MODULE

operating voltage: 3.3 V to 5 V ·
output voltage: 0 V to 1 V (0-10 UV
index) · response time: 0.5 second
· accuracy: +/-1 UV index · radiation
wavelength: 200-370 nm ·
operating temperature: -20 °C
to +85 °C · current consumption:
5 mA · dimensions: 24 x 15 mm ·

VMA328



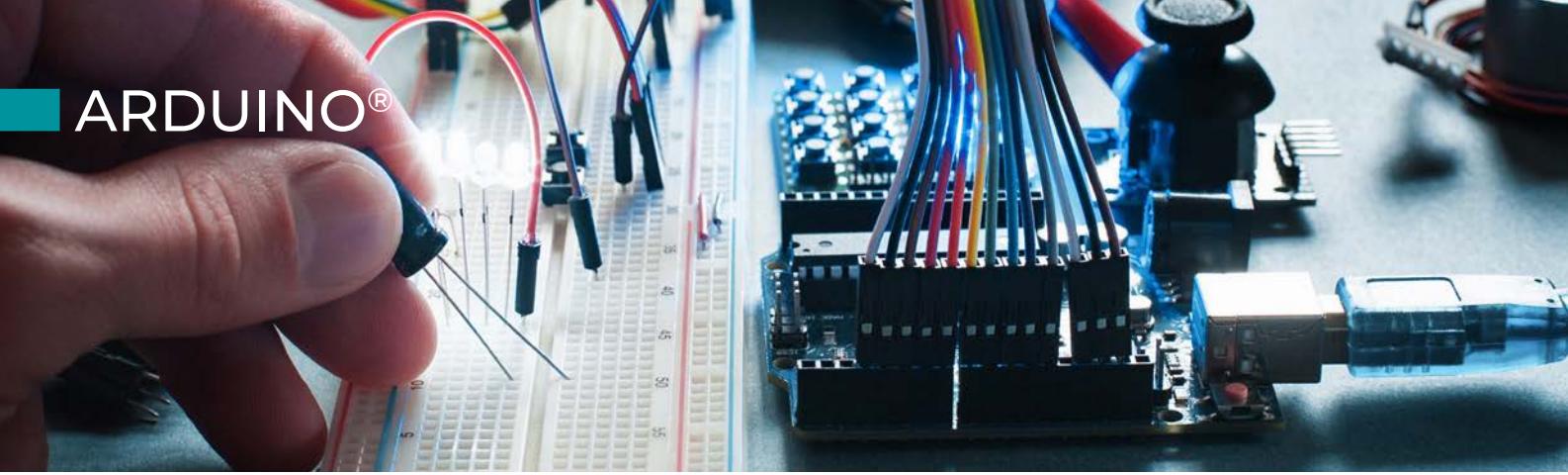
5 410329 680800

COLOR SENSOR TCS3200 MODULE

S0-S1: output frequency scaling
selection inputs · S2-S3: photodiode
type selection inputs · out pin:
output frequency · OE pin: output
frequency enable pin (active low),
can be impeding when using
VMA325



5 410329 680770



PULSE / HEART RATE SENSOR MODULE FOR ARDUINO®

diameter: 16 mm · overall thickness: 3 mm · working voltage: 3 to 5 V · working current: 4 mA at 5 V · cable length: 18 cm · connections: GND, VCC, analog signal out

VMA340

FINGERPRINT SENSOR ZFM-708

power: DC 3.8 V to 70 V · back light: green · baud rate: (9600 x N)bps, N=1-12 (default N=6) · image acquiring time: <0.5 s · finger prints storage capacity: 1000 · false acceptance rate: 0.001% (at security level 3) · false reject rate: 1.0% (security level 3) · interface: TTL serial · operating current (max): 95 mA · average searching time: 1s · working temperature: -20 - +50 °C · outline dimensions: 54 x 20 x 20.5 mm

VMA329

ARDUINO® COMPATIBLE PHOTOSENSITIVE SENSOR MODULE WITH 3 PIN CABLE

operating voltage: 3.3 VDC or 5 VDC · output: analog voltage · pull-down resistor: 10 K. on board · dimensions: 25 x 15 mm

VMA407



5 410329 703080



5 410329 680817



5 410329 657376

FORCE-SENSING RESISTOR (FSR)

sensor type: single point · shape of sensitive area: round · diameter of sensitive area: 10 mm (+/- 1 mm) · total length: 39 mm · sensor thickness: 0.2 mm · material: polyester · range: 100 g to 1 kg · terminal: male pinheader step 2.54 mm · principle: piezoresistive · service life: > 500,000 times · operating temperature: -25°C to 90°C ·

VMA334

BME280 TEMPERATURE HUMIDITY PRESSURE SENSOR

pressure range: 300 to 1100 hPa · temperature range: -40 to 85°C · supply voltage: 1.2 to 3.6 V · I/O voltage: max 3.6 V · current consumption: max. 3.6 uA @ 1 Hz (H,P,T) · sleep mode consumption: 0.1 uA · interface: I2C and SPI · dimensions: 15 x 12 mm

VMA335

LIGHTNING SENSOR

wide supply voltage range: 2.4V - 5.5V · max. current: 100 mA · detects both cloud-to-ground and cloud-to-cloud flashes · estimates distance to lightning strikes between 1km and 40km in 14 steps · embedded 'man made' disturbance rejection algorithm · SPI or I2C interface · breakout board is fully calibrated · mounting holes for 4-40 sized screws · connections are spaced for 0.1" pin header · settings for the outdoor (default mode) or the indoor usage

VMA343

AIR QUALITY SENSOR COMBO BOARD

operation voltage: 3.3V · eCO2 sensing: from 400 to 8,192 parts per million · Total Volatile Organic Compound (TVOC): from 0 to 1,187 parts per billion · temperature range: -40°C (-40°F) to 85°C (185°F) · humidity range: 0-100% RH, +/-3% from 20-80% · pressure range: 30,000Pa to 110,000Pa, relative accuracy of 12Pa, absolute accuracy of 100Pa · altitude range: 0 to 9.2km (30,000 feet), relative accuracy of 1m (3.3 feet) at sea level, 2m (6.6 feet) at 9.2km (30,000 feet) ·

VMA342



5 410329 698751



5 410329 698768



5 410329 701925



5 410329 701918

ARDUINO® COMPATIBLE MINI MAGNETIC REED MODULE (2 PCS)

voltage: 5 VDC · connection:
3 pins, +(middle pin), ground
and DO (data out) · dimensions:
25 x 15 mm · weight: 2 g ·

VMA308



5 410329 657161

ARDUINO® COMPATIBLE HALL (HOLZER) MAGNETIC SWITCH MODULE (2 PCS)

voltage: 5 VDC · connection:
3 pins, +(middle pin), ground
and S (data out) · output (S):
Schmitt Trigger, Active Low ·
activation: 30 Gauss · deactivation:
10 Gauss · LED indicator: ON
when activated · dimensions:
25 x 15 mm · weight: 2 g ·

VMA313



5 410329 657215

CAPACITIVE TOUCH SENSOR SWITCH

connection: 3 pins, GND -
VCC - Signal · voltage: 3 to
5 VDC · dimensions: 30 x
16 x 6 mm · weight: 5 g ·

VMA305



5 410329 657130

VL53L0X TIME-OF-FLIGHT RANGING AND GESTURE DETECTION SENSOR

power supply: 3.3 - 5 VDC · infrared
emitter: 940 nm · range: 30 to
2000 mm · ranging accuracy:
+/- 3 % · sampling time: <= 30 ms
· operating temperature: -20 to
70 °C · interface type: I2C · supply
current: 10 mA · XSHUT and
GDPPIO voltage: max 2.8 V

VMA337



5 410329 702991

LINE TRACKING SENSOR TCRT5000 MODULE

sensor adopts TCRT5000, high
sensitivity · sensitivity adjustable by
potentiometer · working voltage:
3.3V - 5V · operating current: 20 mA
· digital switch output (0 and 1)
· has 2 fixed bolt holes, convenient
installation · small board PCB size:
42 x 10.5 mm · power indicator light
(red) and digital switch output
indicator light (green) · detection
reflection distance: 1 mm - 25 mm

VMA326

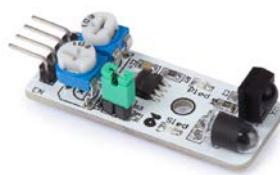


5 410329 680787

IR OBSTACLE AVOIDANCE SENSOR MODULE

operating voltage: 3.3 V to 5 V · output:
digital (on/off) · detection threshold:
adjustable by 2 trimmers · distance
range: 2 to 40 cm · adjustment R5:
frequency adjustment 38 KHz (already
optimised) · adjustment R6: IR LED duty
cycle adjustment (already optimised) ·
operating temperature: -10°C to +50°C ·
effective angle: 35° · I/O interface: 4 wire
interface (- / + / S / EN) · dimensions:
45 x 16 x 10 mm · weight: 9 g

VMA330



5 410329 680824

ARDUINO® COMPATIBLE TACTILE SWITCH SENSOR MODULE (2 PCS)

voltage: 5 VDC · connection:
3 pins, +(middle pin), ground
and DO (data out) · dimensions:
25 x 15 mm · weight: 2 g ·

VMA310



5 410329 657185

ARDUINO® COMPATIBLE ANALOGUE TEMPERATURE SENSOR MODULE (2 PCS)

NTC type: NTC-MFS2 3950 ·
temperature range: -55 °C to 125 °C
· accuracy: +/- 0.5°C · pull-up resistor:
provided, 10 Kohm · connection:
3 pin, (+) 5V, (-) ground, (S) analogue
output · dimensions: 20 x 15 x 5 mm ·

VMA320

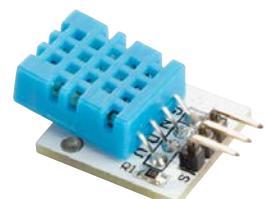


5 410329 657284

DHT11 DIGITAL TEMPERATURE HUMIDITY SENSOR MODULE FOR ARDUINO®

voltage: 5 VDC · temperature
range: 0 - 50 °C, error of +/- 2 °C
· humidity: 20 - 90% RH +/- 5%
RH error · interface: digital ·
dimensions: 39 x 23 x 10 mm ·

VMA311



5 410329 657192

END-STOP SWITCH MODULE (2PCS)

operating voltage: 5 V · connection:
3 pins, VCC = 5 V, GND and OUT ·
dimensions: 25 x 15 mm · weight: 4 g

VMA327



5 410329 680794

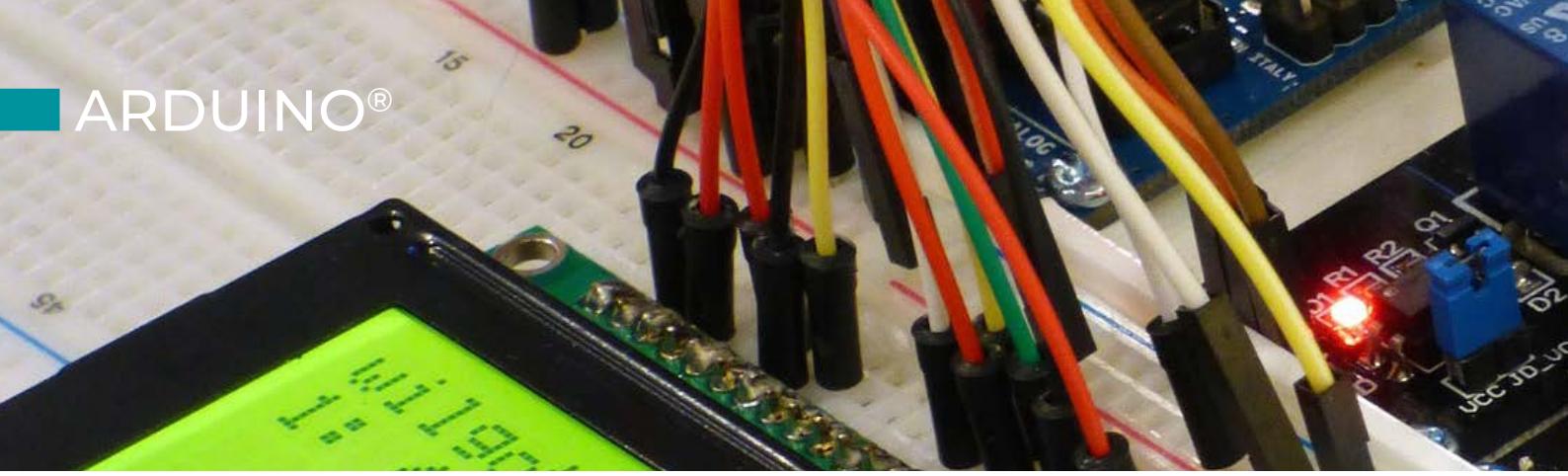
TEMPERATURE PROBE DS18B20 & ARDUINO® COMPATIBLE ADAPTER

dimensions stainless steel tube:
diameter: 6 mm · length: 30 mm
· dimensions cable: diameter:
4 mm · length: 36" (91 cm) ·
connections: · red: 3-5 V

VMA324



5 410329 680763

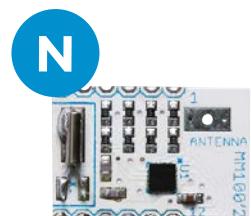


ARDUINO® COMPATIBLE INTERFACES

FM/RDS RECEIVER MINI MODULE

interface: 2-wire or 3-wire · FM range: worldwide FM support · power/Logic level: 3.3 V · max. current: 20 mA · sensitivity: 1.7 μ Vemf · dimensions: 23 x 15 mm (ca. 0.9 x 0.59 inch) · small size · RDS/RBDS support · volume control · automatic frequency control · connector pitch matches standard breadboard pitch · line level analog output · Arduino® library available

MM100

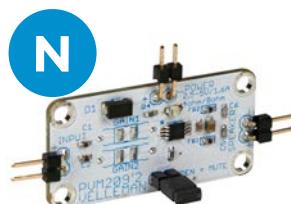


/1
5 410329 630218

CLASS D AUDIO AMPLIFIER - MONO 2.8 W

max. output power: 2.8 W (4 Ohm) or 1.6 W (8 Ohm) · power supply: 2.5 - 5 VDC · max. current consumption: 1.6 A (4 Ohm) - 0.8 A (8 Ohm) · default gain: 18 dB (adjustable) · THD: 0.02 % (1 W / 8 Ohm / 1kHz) · S/N ratio: 98 dB (1.4 W / 8 Ohm) · shutdown current: 20 nA · dimensions: 40 x 20 mm / 1.6 x 0.8"

MM209



/200
5 410329 618049

CLASS D AUDIO AMPLIFIER - STEREO 2.8 W

max. output power: 2.8 W (4 Ohm) or 1.6 W (8 Ohm) · power supply: 2.5 - 5 VDC · max. current consumption: 3.2 A (4 Ohm) - 1.6 A (8 Ohm) · default gain: 18 dB (8x) (adjustable) · THD: 0.02% (1 W / 8 Ohm / 1kHz) · S/N ratio: 98 dB (1.4 W / 8 Ohm) · shutdown current: 40 nA · dimensions: 40 x 35 mm (1.6" x 1.4")

MM210



/200
5 410329 618063

SUPER-MINI DIGITAL AMPLIFIER BOARD

operating voltage: 2.5 to 5 VDC · connections: solder connections · sound processor: PAM8403 · high amplification efficiency 85% · can directly drive 4 O/8 Ohm small speakers · good sound quality & noise suppression · unique without LC filter class D digital power board

VMA408



5 410329 657383

SI4703 FM TUNER EVALUATION BOARD

interface: I2C · power / logic level: 3.3 - 5 V · sensitivity: 1.7 μ emf · max. output power: 150 mW (8 Ohm) · default gain: 18 dB (8x) (adjustable) · dimensions: 29 x 22 mm

VMA444

PAM8610 DIGITAL POWER AMPLIFIER MODULE 2 X 10 W

supply voltage (Vdd): 7 to +15 V · input voltage range (Vi): mute, Vref, volume, fade: 0 to +6.0 V; SD: -0.3 to Vdd; RINN, RNP, LINN, LNP: -0.3 to +6.0 V · junction temperature range (Tj): -40 to +125 °C · output power @ 8 Ohm: 10 W

VMA446



GPS MODULE U-BLOX NEO-7M FOR ARDUINO®

3.3 to 5 VDC (or by USB cable) · connections: VCC (+5 V), GND (ground), TX, RX, PPS (time pulse) · default baud rate: 9600 baud · dimensions: 4 x 2.5 x 1.5 cm · U-BLOX NEO-7N module, compact and excellent performance · parameters can be set via serial port and saved in EEPROM · with SMA interface, you can connect a variety of antenna, strong adaptability · compatible with 3.3 V / 5 V level for easy connection to a variety of microprocessor systems

VMA430



5 410329 680930

RED LASER DIODE MODULE

operating voltage: 5 V · operating current: 20 mA · wavelength: 650 nm · colour: red · dimensions: 18.5 mm x 15 mm [0.728 in x 0.591 in] · working temperature: -10°C - 40°C [14°F to 104°F] · output power: 1 mW

VMA434



5 410329 680961

3 X 4 MATRIX MEMBRANE KEYPAD

dimensions: 7 x 7.7 x 0.1 cm ·
connection: 3 col - 4 row, 7 pin
connection · cable length: 9 cm ·
weight: 6.25 g · library: keypad.h ·

VMA300



5 410329 657086

NFC / RFID SHIELD FOR ARDUINO®

chip: NXP PN532 · working voltage: 3.3 V
· power voltage: 3.3 - 5.5 V · max. power
current: 150 mA · working current (standby
mode): 100 mA · working current (write
mode): 120 mA · working current (read
mode): 120 mA · communication distance:
2.5 cm · communication interfaces: SPI, I2C,
UART · compatibility: ISO14443 type A and
B cards / tags at 13.56 Mhz · dimensions:
69 x 54 x 24 mm · weight: 18 g

VMA211



5 410329 703059

ARDUINO® COMPATIBLE RFID READ AND WRITE MODULE

operating voltage: 3.3 VDC ·
working current: 13 to 26 mA · sleep
current: < 80 uA · peak current:
< 30 mA · working frequency:
13.56 MHz · supported card types:
RFID · interface / protocol: SPI ·
controller chip: MFRC522 · data
transmission speed: Max. 10 Mbit/s
· dimensions: 66 x 40 x 7 mm ·
includes: 2 tags (1 card, 1 fob)

VMA405



5 410329 657352

RFID CARD (10 PCS)

resonance frequency: 13.56 MHz ·
memory: 1K Byte EEPROM · type:
ISO14443 Type - A · operating
temperature: -10 °C to +75 °C (-14 to
167 °F) · identification distance:
0-5 cm (0 to 1.97") · service time:
100.000 re-writes · dimensions:
5.4 x 8.5 x 0.1 cm (0.21 x 0.33 x 0")

VMA417



5 410329 671730

RFID TAG (5 PCS.)

resonance frequency: 13.56 MHz ·
memory: 1K Byte EEPROM · type:
ISO14443 Type - A · operating
temperature: -10 °C to +75 °C (-14 to
167 °F) · identification distance:
0-5 cm (0 to 1.97") · service time:
100.000 re-writes · dimensions:
3.5 x 2.8 cm (1.38 x 1.1")
· thickness: 6 mm (0.24")

VMA418



5 410329 671754

2-CHANNEL POWER MODULE FOR BREADBOARDS 3.3V/5V

input voltage: 7-12 VDC or USB 5 V
power supply (use regulated supply)
· output voltage: 5 VDC fixed +
3.3 V / 5 V, switchable · maximum
output current: maximum 500 mA,
onboard 500 mA resettable fuse
· two power rails: 1 rail fixed 5 V
the other selectable 3.3 V or 5 V
· DC input: 5.5 x 2.1 mm plug ·

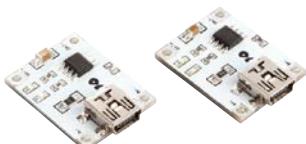
VMA424



1A LITHIUM BATTERY CHARGING BOARD (2 PCS)

input voltage: 4.5 to 5.5 VDC
(by on-board USB connector) ·
charging current: 1A adjustable ·
charge accuracy: 1.5 % · full charge
voltage: 4.2 V · charge indicator:
green = fully charged, red =
charging · working temperature:
-10°C to +80°C · weight: 10 g ·
dimensions: 25 x 19 x 10 mm ·

VMA321



5 410329 657291

DC-DC BOOST MODULE / (2.5 V-5 V) 600 MA TO USB 5 V (2 PCS)

input voltage range: 2.5 to
5 VDC · output voltage: 5 VDC
· connection: solder pads ·
dimensions: 34 x 16 x 8 mm

VMA403



5 410329 657338

DC-DC ADJUSTABLE VOLTAGE STEP DOWN MODULE LM2596S

input voltage: 3 to 40 VDC · output
voltage: 1.25 to 35 VDC · max. input
current: 2.5 A · chip: LM2596S ·
dimensions: 49 x 26 x 12 mm

VMA404



5 410329 657345

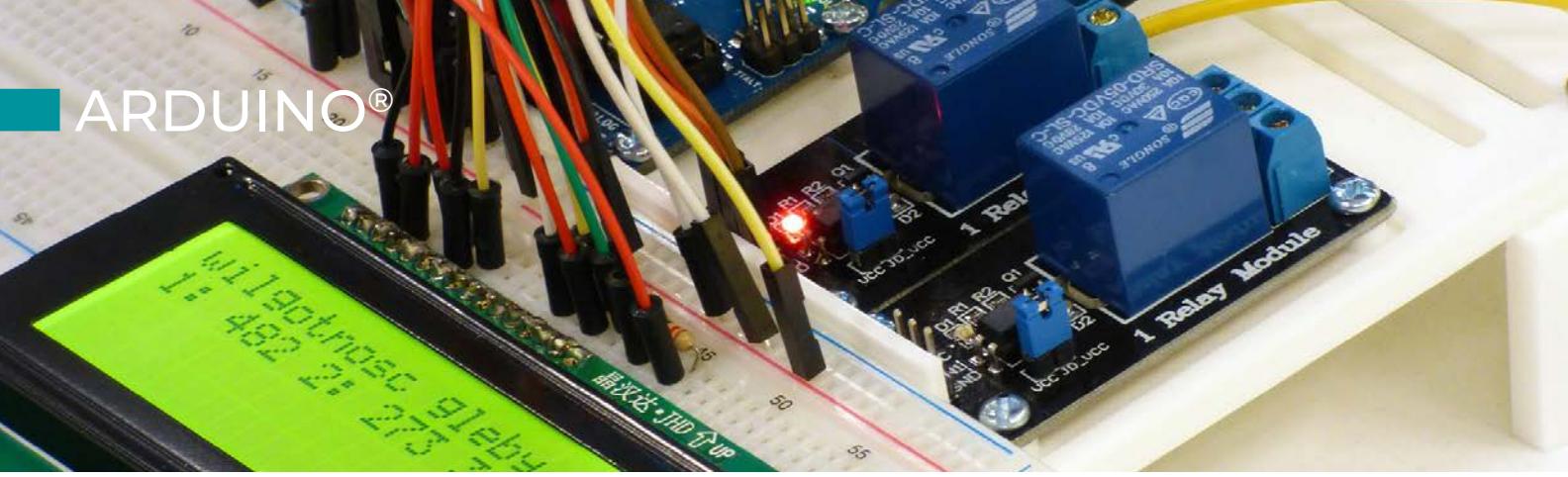
LM2577 DC-DC VOLTAGE STEP-UP (BOOST) MODULE

input voltage: 3.5 to 35 VDC · output
voltage: 5 to 55 VDC (adjustable) ·
max. input current: 3 A · continuous
input current: 2 A · chip: LM2577 ·
dimensions: 43 x 30 x 12 mm ·

VMA402



5 410329 657321



MINI ANALOG SERVO - 9 G

dimensions: 21.5 x 12 x 22.7 mm · voltage: 4.8 to 6 VDC · weight: 9 g · speed: 0.09 sec. for 60° at 6 V · torque: 1.4 kg.cm at 6 V · working temperature: -15 °C to 50 °C · connection type: 3 wires: brown (gnd) - red (+) - orange (signal) · connection diagram: <http://arduino.cc/en/Tutorial/Sweep>

VMA600

270° ROBOT DIGITAL DOUBLE SHAFT SERVO KIT

operating speed (at no load): 0.14 sec/60° at 7.2 V · running current (at no load): 100 mA at 7.2 V · stall torque (at lock): 15 kg at 7.2 V · stall current (at lock): 1.5 A at 7.2 V · idle current (at stopped): 5 mA · operating frequency: 50 - 330 Hz · operating angle: 90°/135° (from 1000 to 2000 usec)

VMA601

5 VDC STEPPER MOTOR WITH ULN2003 DRIVER BOARD

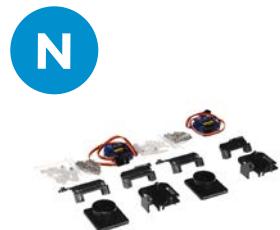
operating voltage: 5 VDC · steps / revolution: 64 · controller: ULN2003 · motor diameter: 28 mm · reduction ratio: 164 · number of phases: 4 · dimensions: 35 x 32 x 10 mm · with LED step indicators · included: 5 V stepper motor · ULN2003 controller module · cable

VMA401

2-AXIS FPV CAMERA CRADLE & 2 PIECES VMA600 SERVO

material: ABS · servos: 2 x VMA600 (included) · weight: 35 g · servos: voltage: 4.8 to 6 VDC · speed: 0.09 sec. for 60° at 6 V · torque: 1.4 kg.cm at 6 V · working temperature: -15 °C to 50 °C · connection type: 3 wires: brown (gnd) - red (+) - orange (signal) · rotation: 180 °

VMA602



L298N DUAL BRIDGE DC STEPPER CONTROLLER BOARD

driver: L298N · driver power supply: +5 V to +35 V · driver output current (max): 2A · logic power output Vss: +5 V to +7 V (internal supply +5 V) · logic current: 0.36 mA · controlling level: low: 0.3 V to 1.5 V, high: 2.3 V-Vss · enable signal level: low: 0.3 V to 1.5 V, high: 2.3 V-Vss · max. power: 25 W · dimensions: 69 x 56 x 36 mm

VMA409

TB6560 3A STEPPER MOTOR DRIVER BOARD

operating voltage: 10 to 35 VDC · rated output current: ± 3 A · peak 3.5 A · dimensions: 50 x 75 x 35 mm · weight: 80 g

VMA333

DIGITAL ROTARY ENCODER MODULE

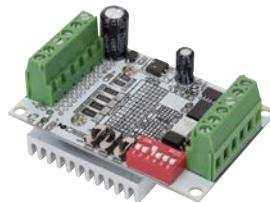
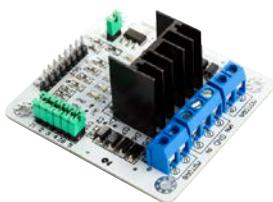
working voltage: 0-5 V · type: incremental encoder · material: PCB + brass · cycles per revolution (CPR): 20 · dimensions: 26 x 19 mm · flat top · push-button capability · unlimited rotations

VMA435

ELECTROMAGNET MODULE

holding force: 25 N · working voltage: 5 V · working current: 400 mA · standby current: 200 uA · load weight: 1 kg · dimensions: 35 x 20 x 17 mm · weight: 25 g ·

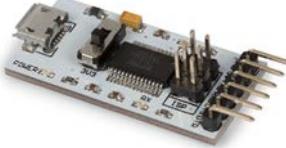
VMA431



FT232 USB TO TTL ADAPTOR 3.3/5 V

power supply: 5 VDC by USB cable (included) · micro USB connector · dimensions: 43 x 17 x 12 mm · weight: 5 g · single chip USB to asynchronous serial data transfer interface · data transfer rates from 300 baud to 3 Mbaud (RS422, RS485, RS232) at TTL levels · transmit and receive LED drive signals · USB 2.0 Full Speed compatible · switchable 3.3 VDC and 5 VDC operation

VMA440

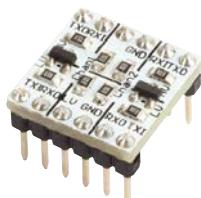


5 410329 690809

3.3 V / 5 V TTL LOGIC LEVEL CONVERTER MODULE

low side (3.3 V): 2 inputs and 2 outputs · high side (5 V): 2 inputs and 2 outputs · other connections: Vlow (3.3 V), VHigh (5 V) · pass-trough GND · dimensions: 15 x 16 x 15 mm · breadboard compatible

VMA410



5 410329 657406

A/D D/A CONVERTER MODULE PCF8591

VMA344



5 410329 703813

TEMPERATURE PROBE / SENSOR 600°C + MAX6675 INTERFACE

thermocouple type: -K · temperature range: 0 °C to 600 °C · error limit: +/- 2.5 °C · heat response time: less than 5 seconds · cable length: 70 cm · total probe length: 251 mm · fixing thread: M12 x 1 · probe diameter: 7 mm · weight: 70 g · interface supply voltage: 5 V

VMA339



5 410329 703066

DS1302 REAL-TIME CLOCK MODULE / WITH BATTERY CR2032 (2 PCS)

manages all timekeeping functions: real-time clock counts seconds, minutes, hours, date of the month, month, day of the week, and year with leap year · 31 x 8 battery-backed general-purpose RAM · simple serial port interfaces to most microcontrollers: simple 3-wire interface · TTL compatible: VCC = 5 V · single-byte or multiple-byte (burst mode) data transfer for read or write of clock or RAM data

VMA301



5 410329 657093

SD CARD LOGGING SHIELD FOR ARDUINO® (2 PCS)

voltage: 3.3 V - 5 V · protocol: SPI · dimensions: 52 x 30 x 12 mm · weight: 8 g · required library: SD.h ·

VMA304



5 410329 657123

ARDUINO® COMPATIBLE 5 V RELAY MODULE

operating voltage: 5 VDC · relay current rating: 10 A at 250 VAC, 10 A at 30 VDC (non-inductive) · relay contact: C, NO, NC · connection: GND, +5 VDC, control input (5 to 12 VDC) · dimensions: 40 x 27 x 18 mm

VMA406



5 410329 657369

1 CHANNEL LATCHING RELAY MODULE WITH TOUCH BISTABLE SWITCH 12 V

supply voltage: 12 VDC · supply current: 15 - 50 mA · trigger current: 0.5 mA · contact rating: 10 A 250 VAC / 10 A 30 VDC · dimensions: 5 x 2.5 x 2 cm · weight: 25 g

VMA331



5 410329 689704

4 CHANNEL RELAY MODULE

control input current (in1 to in4): 5 - 15 mA · control input voltage: 5 - 12 VDC · relay output: 250 VAC 10 A; 30 VDC 10 A (non-inductive) · standard interface that can be controlled directly by any microcontroller · opto-isolated inputs · indicator LEDs for relay output status

VMA400



5 410329 657307

8 CHANNEL RELAY MODULE

control input current (in1 to in4): 5 - 25 mA · control input voltage: 5 - 12 VDC · relay output: 250 VAC 10 A; 30 VDC 10 A (non-inductive) · dimensions: 57 x 138 mm · operating voltage: 5 V · standard interface that can be controlled directly by any microcontroller · opto-isolated inputs · indicator LEDs for relay output status

VMA436



5 410329 680985

1 CHANNEL SOLID STATE RELAY MODULE

power supply: 5 VDC · power current: max 10 mA · input voltage: · relay OFF: 0 to 2.5 VDC · relay ON: 3.3 to 5 VDC · max. load: 240 VAC 2 A 50/60 Hz · dimensions: 2.5 x 2.5 x 3.6 cm · weight: 6 g · protection: 2A Pico fuse on board ·

VMA332

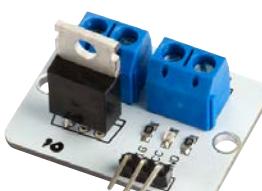


5 410329 690274

ARDUINO® COMPATIBLE MOS DRIVING MODULE

operating voltage: 3 to 5 VDC · max. load voltage: 0 to 24 VDC · input: SIG pin, logic level 3 to 5 VDC · max. load current: 5 A (a heatsink is required for loads > 1 A) · used MOSFET: IRF520 · dimensions: 34 x 21 x 16 mm

VMA411

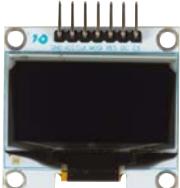


5 410329 657413

1.3 INCH OLED SCREEN FOR ARDUINO® (SH1106 DRIVER, SPI)

resolution: 128 x 64 dots · viewing angle: > 160° · working voltage: 3 - 5 V · recommended library: U8glib · interface: SPI · driver: SH1106 · working temperature: -30°C - 70°C · OLED colour: blue · dimensions: 35 x 33.5 mm ·

VMA437



5 410329 680992

0.96 INCH OLED SCREEN WITH I2C FOR ARDUINO®

resolution: 128 x 64 dots · viewing angle: > 160° · working voltage: 3 - 5 V · recommended library: U8glib · interface: I2C · driver: SSD1306 · working temperature: -30°C - 70°C · OLED colour: blue · I/O level: 3.3 V and 5 V · dimensions: 27 x 27 mm ·

VMA438

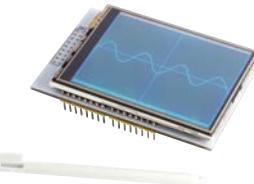


5 410329 681005

2.8 INCH TOUCH SCREEN FOR ARDUINO® UNO/MEGA

resolution: 240 RGB x 320 · display driver: ILI9341 V0.7 · colour depth: 262 000 colours · system interface: 8-bits, 9-bits, 16-bits, 18-bits interface with 8080-I / 8080-II series MCUs · 6-bits, 16-bits, 18-bits RGB interface with graphic controller · 3-line / 4-line serial interface · display mode: full colour mode: 262 000 colour · reduced colour mode: 8-colour

VMA412



5 410329 657420

WATER HOSE & ACCESSORIES

hose: length: 2 m · inside diameter: 8 mm · outside diameter: 10 mm · material: clear plastic · clamp: diameter: 6 - 15 mm · contents: 2 pcs · hose joint: · length: 40 mm · diameter: 6 - 10 mm

VMA420



5 410329 680831

RGB DOT MATRIX BOARD & DRIVER BOARD BASED ON ATMEGA328

microprocessor: Atmega328P · indicator: PWR state · 5 to 7.5 VDC · cascade power connector: terminal blocks · program interface: UART/ISP (VMA440) · expansion socket: 100 mil bended pin header pair · communication protocols: UART/IIC · current consumption: max. 40 mA · drive current: max. 58 mA · circuit response time: 10 ns · RGB LED matrix colour resolution per dot: 16 M

VMA439



5 410329 681012

4-DIGIT DISPLAY WITH DRIVER MODULE (TM1637 DRIVER)

operating voltage: 3.3 V or 5 V · LED colour: red · driver chipset: TM1637 · serial 4 digit display module · uses just 2 pins to communicate with your microcontroller · 4 M2 mounting holes for easy mounting in your projects · seven segment displays with the : in between · pinout: GND = 0 V · VCC = 5 V or 3.3 V · DIO = data input from microcontroller · CLK = clock signal from microcontroller

VMA425



5 410329 680886

LARGE DOT MATRIX LED DISPLAY - WHITE LEDs

dimensions: 320 x 160 x 14 mm (including rear connector) · 32 x 16 high brightness white LEDs (512 LEDs total) on a 10 mm pitch · 5 V operation (max. 4 A) · viewable over 12 metres away · tough plastic frame · controller ICs on board, simple clocked data interface · Arduino® compatible library, graphics functions and example support

VMA419



5 410329 673833

2.4 GHZ NRF24L01 WIRELESS TRANCEIVER MODULE (2PCS)

power supply: 1.9 - 3.6 V · IO port working voltage: 0 - 3.3 V · transmitting rate: +7 dB · receiving sensitivity: < 90 dB · transmission range: 250 m in open area · dimensions: 15 x 29 mm · worldwide license-free 2.4 GHz ISM band operation · 250 kbps, 1 Mbps and 2 Mbps on-air data-rate options · enhanced ShockBurst™ hardware protocol accelerator · ultra low power consumption - months to years of battery lifetime

VMA322



5 410329 680749

BLUETOOTH HC-05 TRANSMISSION MODULE

frequency: 2.45 GHz · asynchronous speed: max. 2.1 Mbps · security: authentication · profile: Bluetooth Serial Port · power supply: +3.3 VDC · working temperature: max. 60°C ·

VMA302



5 410329 657109

DMX512 MODULE

working voltage: 5 V · DMX connection: XLR 3 pin · dimensions: 40 x 20 x 30 mm · weight: 10 g ·

VMA432



5 410329 680954

WATER PUMP

5 VDC to 12 VDC · max. load current: 0.35 A at 12 VDC · power consumption: 4.2 W at 12 VDC · max. horizontal flow rate: 240 L/H · max. static lift: 3 m · noise class: <40 dB · waterproof class: IP68 · life span: > 30.000 hrs · external diameter of outlet: 8 mm · external diameter of inlet: 8 mm · driving mechanism: brushless DC motor · pump shell material: ABS · conditions of use: can continuously work, submersible or land use (not self-priming)

VMA421



WATER VALVE

inlet - outlet diameter: 8 mm · working pressure: 0.02 to 0.8 MPa (0.2 to 8 bar) · working temperature: 1 °C to 60 °C · response time (open): = 0.15 sec · response time (close): = 0.3 sec · actuating voltage: 12VDC · weight: 95 g · connection: 6.3 mm tab (For FBF6 or FBMI).

VMA422



MINI PERISTALTIC PUMP 6 V

power supply: 6 VDC / 5 W · tube dimensions: 2.0 x 4.0 mm · tube material: silicon · tube life: > 200 h · flow rate: >= 39 ml / min · dimensions: 65 x 40 mm · weight: 95 g · connections: solder tag 3 mm

VMA447



SILICONE TUBE FOR VMA447

tube dimensions: 2.0 x 4.0 mm · tube material: silicon · length: 2 m

VMA448



ACCESSORIES FOR ARDUINO®

TRANSPARENT BOX CASE

SHELL FOR ARDUINO® UNO R3

material: acrylic · dimensions: 79 x 65 x 21 mm · weight: 53 g ·

VMA506



TRANSPARENT BOX CASE

SHELL FOR ARDUINO® MEGA 2560R3

material: acrylic · dimensions: 114 x 65 x 18 mm · weight: 72 g ·

VMA507



UNIVERSAL POWER SUPPLY

100 - 240 VAC 50/60 Hz 0.6 A · power: 18 W max. · no load power consumption: < 0.1 W · output voltage: 9 VDC · 2000 mA · cable length: 1.50 m · delivered with 6 female plugs: 5.5 x 2.1 mm - 5.5 x 2.5 mm - 7.4 x 5.0 mm - 3.5 x 1.35 mm - 4.0 x 1.7 mm - 2.35 x 0.7 mm · with ferrite core

PSSE0920



COMPACT SWITCHING POWER SUPPLY

100-240 VAC 50/60 Hz 0.6 A · power: 24 W max. · no load power consumption: < 0.1 W · output voltage: 12 VDC · 2 A · cable length: 1.50 m · connector: 2.1 x 5.5 mm · with ferrite core

PSSE1220N



40 PINS JUMPER WIRE (FLAT CABLE)

diameter: 22-26AWG · insulation material: PVC · conductor material: copper · contents: 1 pc. of multi-colour flat cable (40 wires) · pre-cut, pre-stripped and pre-formed wires simplify and speed up prototyping work · easy to connect and disconnect · these wires are compatible with standard breadboards that have 0.1" grids



CODE

CODE	SPECIFICATION	ICON	BARCODE
VMA413	male to male · 30 cm		5 410329 657437
VMA414	male to female · 30 cm		5 410329 657444
VMA415	female to female · 30 cm		5 410329 657451
VMA427	male to male · 15 cm		5 410329 680909
VMA428	male to female · 15 cm		5 410329 680916
VMA429	female to female · 15 cm		5 410329 680923

BrightDots are small and wearable modules with one or more LEDs that need to be controlled by an Arduino® compatible development board.

The entire collection includes a series of diverse modules with addressable RGB LEDs that can be controlled individually. There is also a unique Arduino® compatible ESP-32 wearable development board that you can use to create something bright & wearable that's also smart.

N

BRIGHTDOTS



BRIGHTDOT WEARABLE DEVELOPMENT BOARD

dimensions: diameter: 8 cm (3,15 inch) ; height: 9 mm (3,54 inch) · power supply: USB or battery powered · max. battery supply voltage: 6 V · current consumption: min. 20 mA, max. 1A (when all RGB LEDs are on, software limited) · battery or USB pass through output: max. 1A (depends on battery and USB capacity) · CPU speed: 8 MHz · Atmega32u4 @ 8 MHz · native USB support · 24 BrightDot addressable RGB LEDs (WS2812) · ON/OFF switch · reset button · 1 user button · 1 user LED · PCF8523 RTC clock · 10 GPIO sewable contacts and alligator clip friendly · charging indicator LED · RX/TX LED indication · LEDs are mounted in a clock form · free Arduino® library · included: an easy to use battery holder for 3 AA batteries (batteries not incl.) an easy to use battery holder for 3 AA batteries (batteries not incl.) ; USB 2.0 A to micro USB cable

VMW100

/20



5 410329 687991



ESP32 WEARABLE DEVELOPMENT BOARD

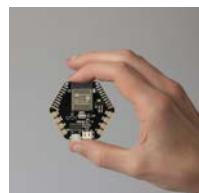
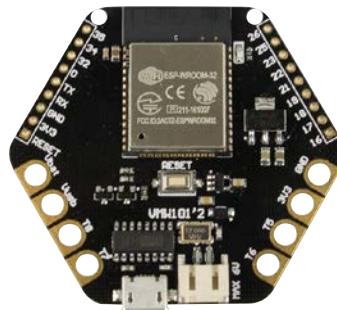
general purpose IO: 17 · processors: CPU: Xtensa dual-core (or single-core) 32-bit LX6 microprocessor, operating at 160 or 240 MHz and performing at up to 600 DMIPS ; ultra low power (ULP) co-processor · memory: 520 KB SRAM ; 448 KB ROM · wireless connectivity: WiFi: 802.11 b/g/n ; Bluetooth®: v4.2 BR/EDR and BLE · power management: max. current consumption: 300 mA ; deep sleep power consumption: 10 µA ; max. battery input voltage: 6 V ; max. battery charge current: 450 mA · dimensions (W x L x H): 56 x 50 x 7,5 mm (2,2 x 1,97 x 2,95 inch) · on board WiFi and Bluetooth® · 8 x easy sewable pads ; 4 x regular power pads ; 4 x capacitive touch-enabled pads · on-board orange LED · hall effect sensor · temperature sensor · ultra-low power analog pre-amplifier · integrated LiPo battery charger · dedicated reset button · 2 x 8-bit DACs · ultra-thin PCB · Arduino® compatible · compatible with all BrightDot wearable LED boards · based on the ESP32 · SPI, I²S, I²C and UART interfaces · the LED PWM, UART, I²C, I²S, and general purpose SPI functions can be configured to any GPIO · 12-bit SAR ADC · LED PWM (up to 16 channels) · deep sleep mode to lower power consumption when preferable

VMW101

/40



5 410329 696696



SMALL BRIGHTDOT PACK

dimensions (L x W): 11 x 6,5 mm (0,43 x 0,25 inch) · max. current consumption: 60 mA / LED at full brightness · power supply: 3,3 V - 5 V · PCB thickness: 2,1 mm (0,08 inch) · required: or other Arduino® compatible development board · 5 x singleton BrightDots · integrated backup line (this ensures that one broken LED does not affect the next LED) · each PCB has gold plated contacts with 6 sewing holes of 1,22 mm · solder or sew them!

VMW102

/40



5 410329 696702





FUN
TUTORIALS &
PROJECTS ON
MANUALS.VELLEMAN.EU

ESP32
wearable
development
board
compatible
(VMW101)

integrated
backup line

solder or sew

MEDIUM BRIGHTDOT PACK

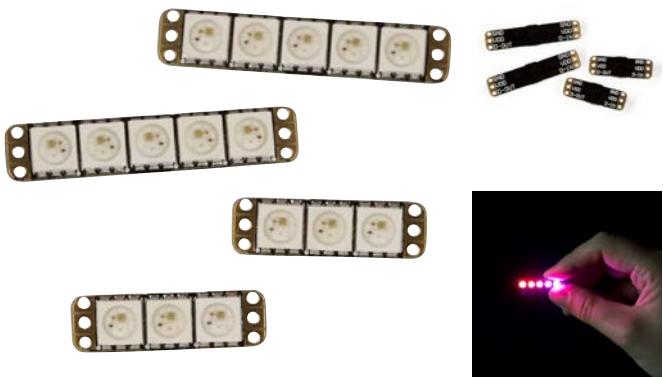
dimensions threefold strip (L x W): 22 x 6.5 mm (0.87 x 0.25 inch) · dimensions fivefold strip (L x W): 33 x 6.5 mm (1.29 x 0.25 inch) · max. current consumption: 60 mA / LED at full brightness · power supply: 3.3 V - 5 V · PCB thickness: 2.1 mm (0.082 inch) · required: or other Arduino® compatible development board · 2 x fivefold BrightDot strips · 2 x threefold BrightDot strips · integrated backup line (this ensures that one broken LED does not affect the next LED) · each PCB has gold plated contacts with 6 sewing holes of 1.22 mm · solder or sew them!

VMW103

/40



5 410329 696719



ESP32
wearable
development
board
compatible
(VMW101)

integrated
backup line

solder or sew

LARGE BRIGHTDOT PACK

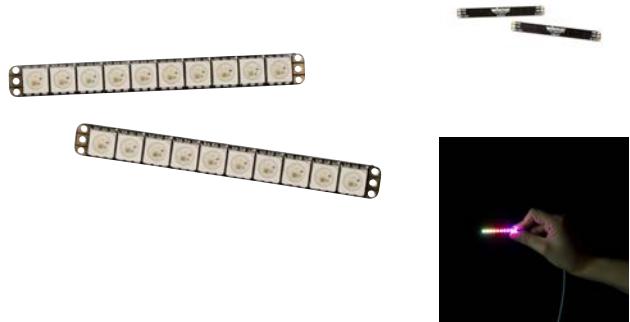
max. current consumption: 60 mA / LED at full brightness · power supply: 3.3 V - 5 V · dimensions (L x W): 60.5 x 6.5 mm (2.38 x 0.25 inch) · PCB thickness: 2.1 mm (0.082 inch) · required: or other Arduino® compatible development board · 2 x tenfold BrightDot strips · integrated backup line (this ensures that one broken LED does not affect the next LED) · each PCB has gold plated contacts with 6 sewing holes of 1.22 mm · solder or sew them!

VMW104

/40



5 410329 696726



ESP32
wearable
development
board
compatible
(VMW101)

integrated
backup line

solder or sew

CORNER BRIGHTDOT PACK

dimensions (L x W): 14.25 x 6.5 mm (0.56 x 0.255 inch) · max. current consumption: 60 mA / LED at full brightness · power supply: 3.3 V - 5 V · PCB thickness: 2.1 mm (0.082 inch) · required: or other Arduino® compatible development board · 2 x left BrightDot corners · 2 x right BrightDot corners · integrated backup line (this ensures that one broken LED does not affect the next LED) · each PCB has gold plated contacts with 6 sewing holes of 1.22 mm · solder or sew them!

VMW105

/40



5 410329 696733



N

ARC BRIGHTDOT PACK

max. current consumption: 60 mA / LED at full brightness · power supply: 3.3 V - 5 V · dimensions (L x W): 32.5 x 6.5 mm (1.28 x 0.25 inch)
 · PCB thickness: 2.1 mm (0.082 inch) · required: or other Arduino® compatible development board · 2 x left BrightDot arcs · 2 x right BrightDot arcs · integrated backup line (this ensures that one broken LED does not affect the next LED) · each PCB has gold plated contacts with 6 sewing holes of 1.22 mm · solder or sew them!

VMW106



/40



5 410329 696740



SMALL BRIGHTDOT CIRCLE PACK

diameter: 32 mm (1.26 inch) · max. current consumption: 60 mA / LED at full brightness · power supply: 3.3 V - 5 V · PCB thickness: 2.1 mm (0.082 inch) · required: or other Arduino® compatible development board · 2 x small BrightDot circle · integrated backup line (this ensures that one broken LED does not affect the next LED) · each PCB has gold plated contacts with 6 sewing holes of 1.22 mm · solder or sew them!

VMW107



/40



5 410329 696757



MEDIUM BRIGHTDOT CIRCLE

diameter: 47 mm (1.85 inch) · max. current consumption: 60 mA / LED at full brightness · power supply: 3.3 V - 5 V · PCB thickness: 2.1 mm (0.082 inch) · required: or other Arduino® compatible development board · medium BrightDot circle · integrated backup line (this ensures that one broken LED does not affect the next LED) · each PCB has gold plated contacts with 6 sewing holes of 1.22 mm · solder or sew them!

VMW108



/40



5 410329 696764





LARGE BRIGHTDOT CIRCLE

max. current consumption: 60 mA / LED at full brightness · power supply: 3.3 V - 5 V · diameter: 69 mm (2.7 inch) · PCB thickness: 2.1 mm (0.082 inch) · required: or other Arduino compatible development board · large BrightDot circle · integrated backup line (this ensures that one broken LED does not affect the next LED) · each PCB has gold plated contacts with 6 sewing holes of 1.22 mm · solder or sew them!

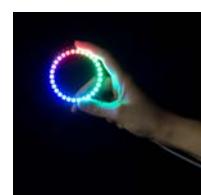
VMW109



/40



5 410329 696771



64 LED RGB MATRIX

WS2812S LEDs · power supply: 5 VDC · current consumption: 3,5 A / panel max · dimensions: 72 x 72 x 3 mm (2.8" x 2.8" x 0.1") · LED pitch: 9 mm (0,35") · 8 x 8 matrix (1 panel) · each led is individually addressable · 16 million colours · extremely bright · units can be chained to create bigger displays · no gaps between chained units · 3-wire interface · requires only 1 microcontroller I/O · drive the panels with the platform of your choice (Arduino® Platform; Uno, Mega, Yún, Teensy,...) · compatible with several popular Arduino® libraries · STL file for 3D-printable mounts available

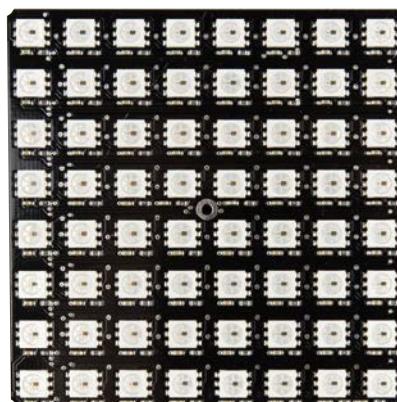
VM207



/20



5 410329 612955



BRIGHTDOT SEWING KIT FOR ELECTRONIC WEARABLES

- conductive sewing thread (3 ply) · sewing needle set (20 pcs, 5-9)
- thread fixator (5 ml)

VMW110



/40



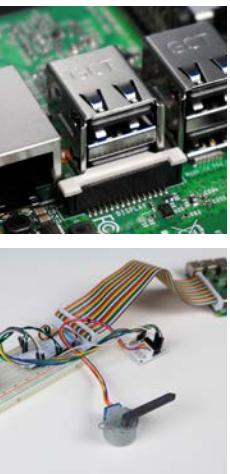
5 410329 701802

BRIGHTDOT POWER & FUSE PACK FOR ELECTRONIC WEARABLES

fuse board dimensions (W x L x H): 38 x 38 x 7,4 mm · fuse trip current LEDs: 500 mA · fuse trip current development board: 750 mA · fuse board max. forward voltage: 360 mV · fuse board ; Vin connectors: ; BAT1: soldering points for your own power connection; ; BAT2: JST connector for standard LiPo battery and/or our alkaline battery pack ; Vout connector: JST ; fuses: ; fuse to protect the LED circuit; ; fuse to protect the development board · battery pack for 3 x AA batteries (batteries not incl.)

VMW111





GET PROGRAMMING WITH RASPBERRY PI®!

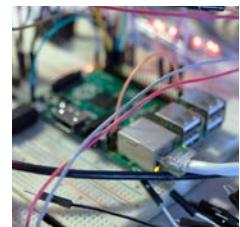
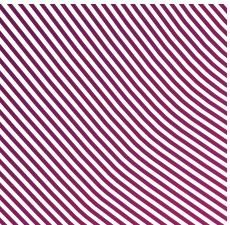
Since 2012, the Raspberry Pi® Foundation has developed several generations of products and multiple types of Raspberry Pi®'s. Each new model has an improved design and includes extra features like more RAM or more processing power to broaden your project's capabilities.

And with the hardware comes the operating system named Raspbian, which is a Linux fork based on the popular Debian distribution. Raspbian makes it easy to use Python and Scratch as the main programming languages, with support of many other languages to keep it accessible.

You will have to use a micro SD card as a hard drive to store the OS as well as all the other files that you will create.

Just like any other computer, programming the Raspberry Pi® also requires a power source, a monitor, a keyboard and a mouse. You can buy all this stuff new or you can get creative and re-use old equipment like using an old TV as a monitor and a mobile phone charger as a power supply.

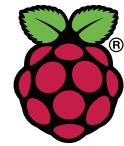
Once you've got everything in order, it is time to start experimenting and learning. Whether you are a skilled programmer writing in Python or a youngster taking your first steps in Scratch, there are a bunch of cool projects waiting for you on the Raspberry Pi® community website.



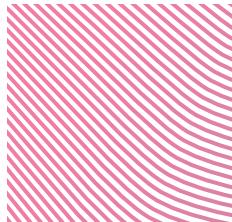
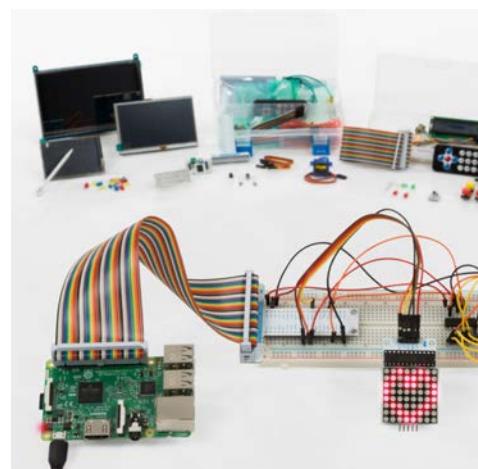
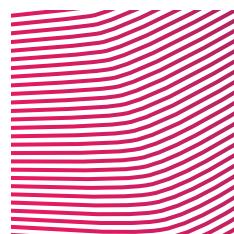
RASPBERRY PI®

Velleman IO offers starter sets (with and without the Pi), giving you all the basic items needed to make your first steps in the Raspberry Pi® world. Furthermore we offer a range of accessories going from housings over touchscreens and power supplies. As always all these items were carefully selected to provide you with the best possible experience while building your Pi projects.

A Raspberry Pi® is a deliciously small and inexpensive computer that anyone can use to learn programming or to use as an all-round computer for cool projects.



Raspberry Pi



RASPBERRY PI®



RASPBERRY PI®



RASPBERRY PI® 3B+ STARTER KIT

processor: 1.4 GHz quad core BCM2837B0 Cortex-A53 64 bit
· connectivity: built-in WiFi (802.11B/G/N/AC) and Bluetooth 4.2 Low Energy (BLE) · RAM: 1GB LPDDR2 SDRAM · USB: 4 x USB 2.0 ports · Ethernet: 10/100 Ethernet port · video output: full-size HDMI and composite · sound: L/R stereo line-out · operating system: microSD card to load and store OS · digital interfaces: CSI camera port and DSI display port · GPIO: 40 general purpose input/output pins · power: requires 5V 2.5A USB power supply · contains: Raspberry Pi® 3 model B+; housing for Raspberry Pi® 3 model B; (PICASE1C); micro SD card 8 GB; power supply: PSSEUSB26B; HDMI cable: (PAC415B015); ethernet cable: IM6001

PI3SETN



5 410329 695026



RASPBERRY PI® CASE

Discover our cases that offer ultimate protection for your Raspberry Pi®.



TOUCHSCREEN FOR RASPBERRY PI®

These Touchscreen Displays are perfect for creating portable and embedded projects where a keyboard and mouse would be in the way. · can be connected with Raspberry Pi® through HDMI port or dedicated connector · can be used as general purpose HDMI monitor

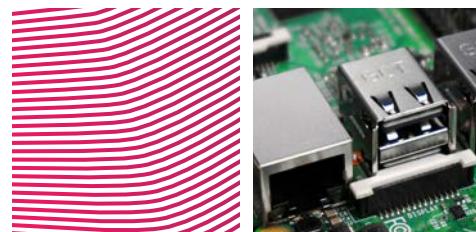


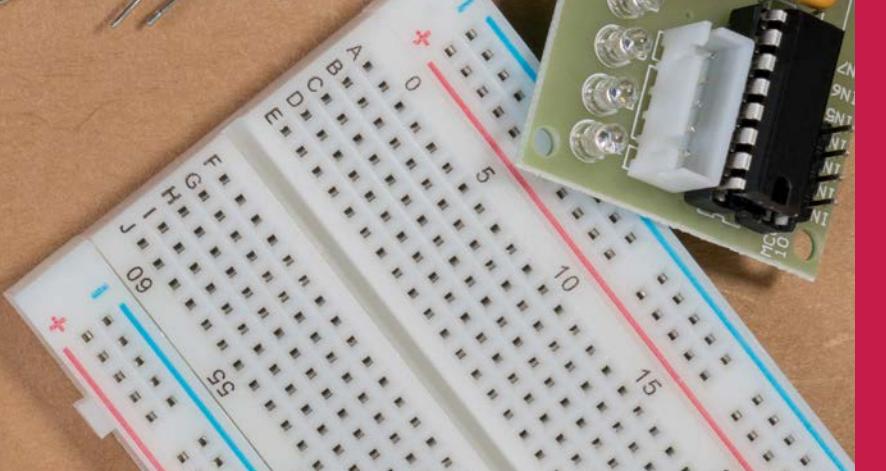
CODE FOR RASPBERRY PI®

PICASE1C	<input type="radio"/> for B+, 2B & 3B			5 410329 656584
PICASE1B	<input checked="" type="radio"/> for B+, 2B & 3B			5 410329 656560
PICASE1W	<input type="radio"/> for B+, 2B & 3B			5 410329 656577
VMP503	<input checked="" type="radio"/> for 3 VESA HOUSING			5 410329 676735
VMP504	<input type="radio"/> for 3B & 3B+			5 410329 703097

CODE RESOLUTION

VMP400	3.5" 320 x 480 resistive touch			5 410329 672232
VMP401	5" 800 x 480 resistive touch			5 410329 679460
VMP402	7" 800 x 480 resistive touch			5 410329 679798





KIT

ELECTRONIC PARTS PACK FOR RASPBERRY PI®

830 points solderless breadboard · 10 x 10K resistors · 10 x 560R resistors · 1602 LCD module · 65 x breadboard jumper wire M-M · T-Shape GPIO expansion board · ribbon cable for GPIO board · infrared receiver module (VMA317) · mini remote control for VMA317 · DS18B20 Digital One Wire Temperature Sensor · 50K potentiometer (K047AM) · 4 x button with round cap 4-pin 12 x 12 mm · 2 x red LED 5 mm · 2 x green LED 5 mm · RGB LED 5 mm · 40 pin 2.54 mm single row male pin header · 3P F-F header connector wire cable - 20 cm · 3P F-F jumper cable - 20 cm · plastic clear box 186 x 90 x 45 mm

VMP500



KIT

DIY KIT FOR RASPBERRY PI®

830 points solderless breadboard · 10 x 10K resistors · 10 x 560R resistors · 10 x 51K resistors · 1602 LCD module · T-shape GPIO expansion board · ribbon cable for GPIO board · infrared receiver module · mini remote control for VMA317 · 50K potentiometer · 4 x button with round cap 4-pin 12 x 12 mm · 2 x red LED 5 mm · 2 x green LED 5 mm · 2 x yellow LED 5 mm · RGB LED 5 mm · 40 pin 2.54 mm single row male pin header · PIR motion sensor · 5V relay module · 5V stepper motor with ULN2003 driver board · DHT11 digital temperature and humidity sensor · PL2303 USB-TTL serial converter cable · rain sensor module · 2 x photoresistor LDR 0.1-500K · temperature sensor · plastic clear box 200 x 140 x 48 mm

VMP501



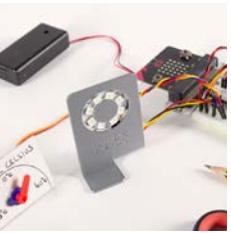
KIT

BASIC LEARNING KIT FOR RASPBERRY PI®

830 points solderless breadboard · 5 x 10K resistors · 5 x 2K resistors · 5 x 220R resistors · 1602 LCD module · T-shape GPIO expansion board · ribbon cable for GPIO board · infrared receiver VSA1838 · mini remote control for VMA317 · 50K potentiometer · 4 x button with round cap 4-pin 12 x 12 mm · 40 pin 2.54 mm single row male pin header · 3 x photoresistor LDR 0.1-500K · LM35 temperature sensor · active buzzer 5V · passive buzzer 5V · 30 x breadboard jumper wire M-M different length · 20P/20 cm male to female jumper · micro servo 9 g · MAX7219 + 1088AS matrix 8 x 8 LED module · PCF8591 analog to digital converter module + 3P jumper · 5 mm RGB LED · flame sensor YG1006 · 2 x tilting sensor · shift register 74HC595N · digit 7 segment display SMA42056 · 4 digit 7 segment display SMA420564 · plastic clear box 200 x 140 x 48 mm

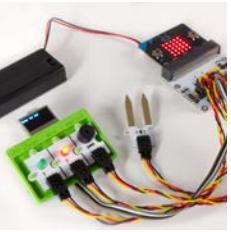
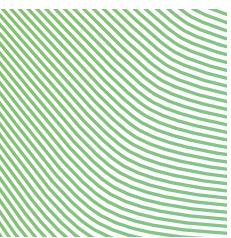
VMP502





LET'S MAKE LEARNING WITH TECHNOLOGY FUN!

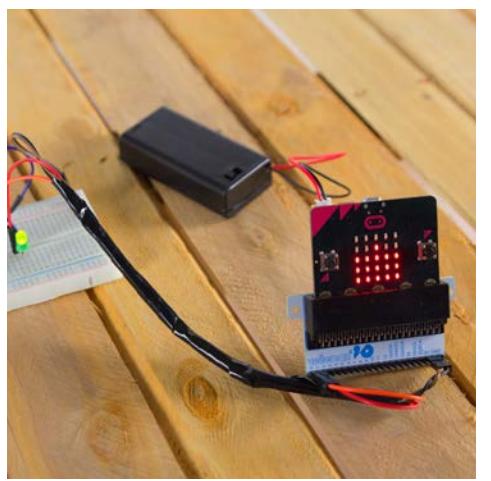
The micro:bit® is an educational and creative tool to inspire a new generation of young people. It can be used across the curriculum, not just in STEM subjects. It can help give young people the knowledge and skills to move from being consumers of digital information, to being designers and creators of new tools to enhance learning, to solve problems or just to have fun, enabling them to make the most of 21st Century life and the economy.



↗ Python Editor

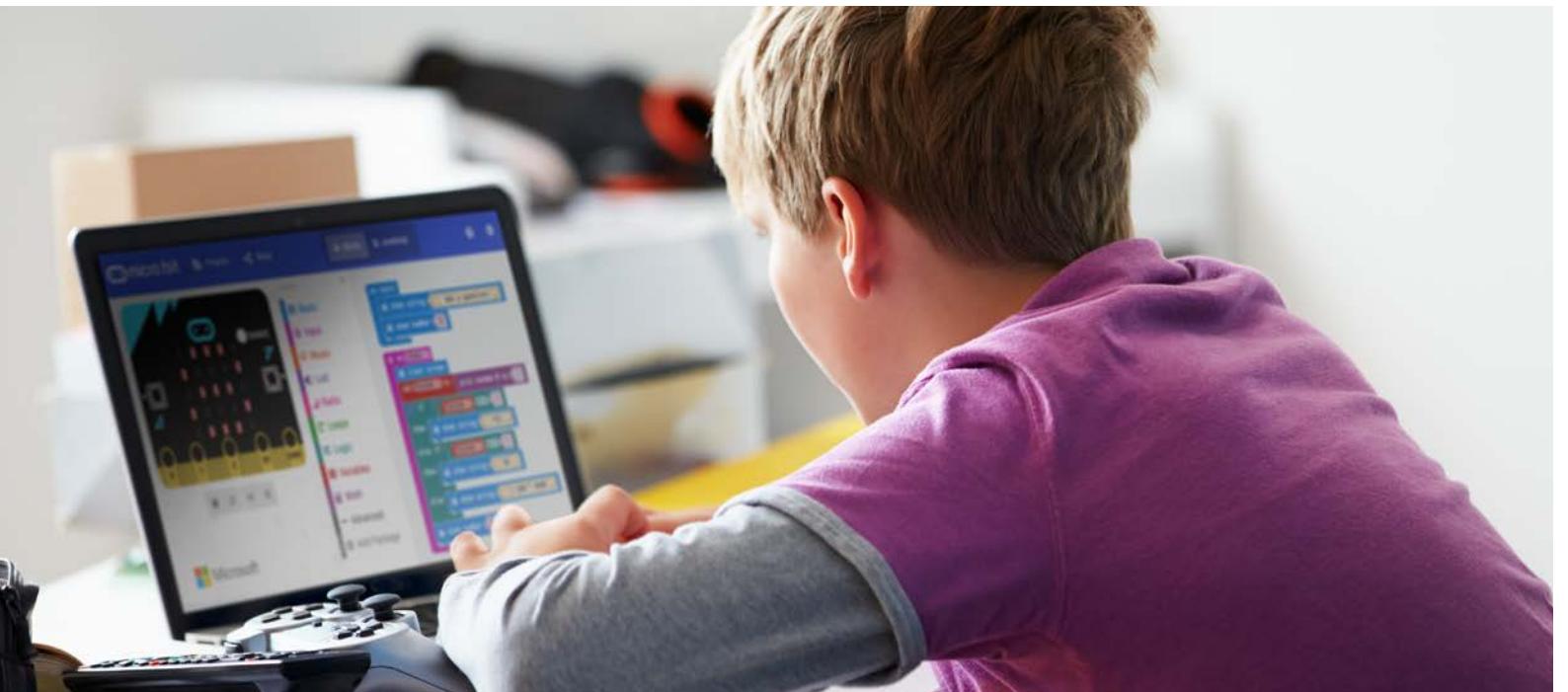
The Python editor is perfect for those who want to push their coding skills further. A selection of snippets and a range of premade images and music give you a helping hand with your code.

```
1 # Add your Python code here. E.g.
2 from microbit import *
3 import music
4
5 notes = [
6     'c4:1', 'e', 'g', 'c5', 'e5', 'g4', 'c5', 'e5',
7 ]
8
9 while True:
10     display.scroll('Hello, World!')
11     display.show(Image.HEART)
12     sleep(2000)
13     music.play(notes)
14
15
16
17
```



↓ JavaScript Blocks Editor (PXT)

Micro:bit®'s new JavaScript editor makes it easy to program your micro:bit® in Blocks and JavaScript, along with great new features like peer-to-peer radio.

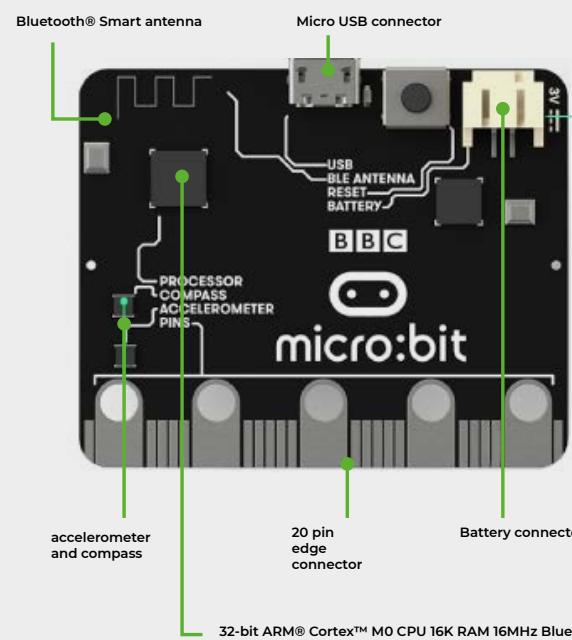
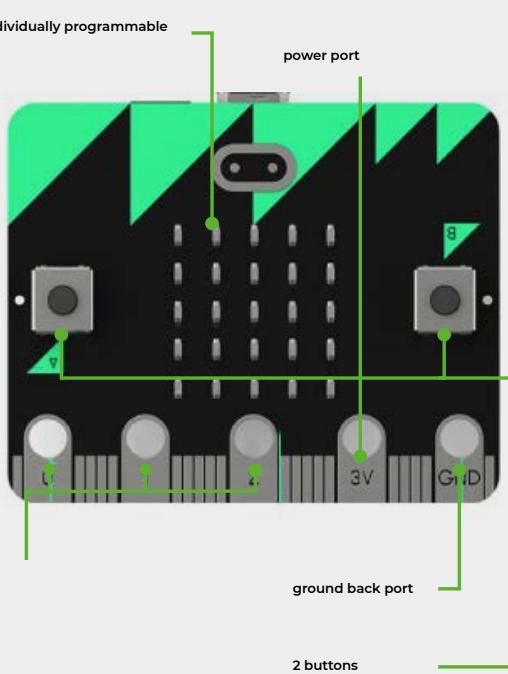
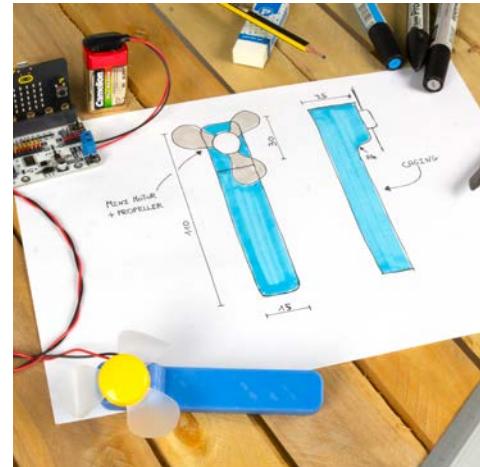
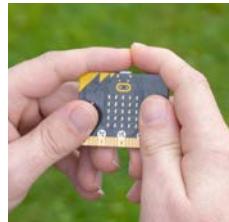




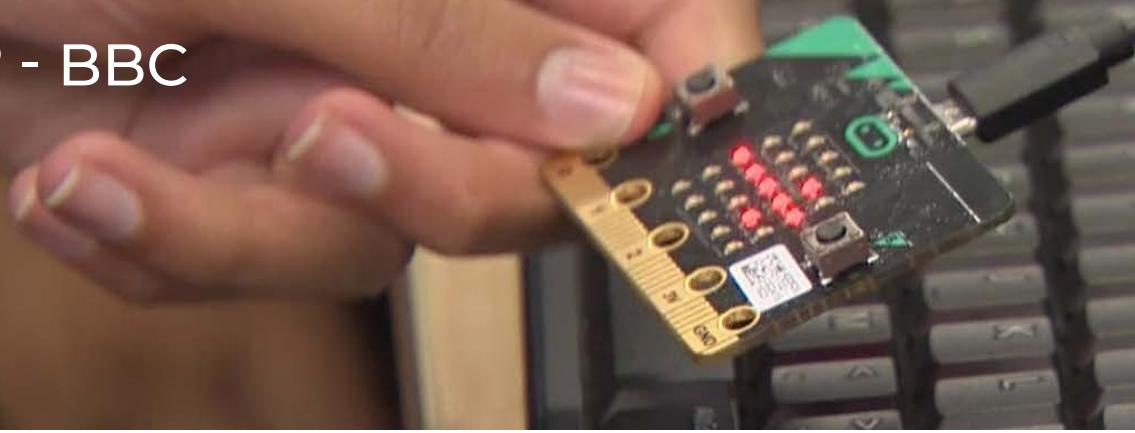
MICRO:BIT® - BBC

Experimenting with Micro:bit® can start at any age. Except for adults it is also especially well suited towards youngsters who are eager to learn programming and electronics. Velleman IO gives you all that is needed to help them or you develop your projects by means of starter sets and development aids.

The BBC micro:bit® is a must for everybody who wants to get started with or is inspired by programming. It has an ARM-based embedded system. It is compatible with different coding languages starting from Block Editor & mobile apps for the starters to Python for the more advanced users. It's possible to connect it to other devices such as Raspberry Pi® through its 20 pin edge connector. The built-in compass together with the accelerometer and motion detector ensures that the BBC micro:bit® has endless possibilities. The BBC micro:bit® is battery operated so perfectly suited as a mobile solution.



MICRO:BIT® - BBC



MICRO:BIT® - BBC

KIT



MICRO:BIT® - STARTER KIT

processor: 16 MHz ARM Cortex - M0 microcontroller 32-bit processor
· connectivity: Bluetooth Low Energy (BLE) · USB: USB 2.0 port and micro-USB connector · GPIO: up to 17 general purpose input / output pins · RAM: 16 KB static RAM · power supply: battery holder: 2 x AAA - micro-USB connector · contains: USB cable, housing for micro:bit®, battery holder, micro:bit®, battery: 4 x AAA (LR03C) · micro:bit® hardware: lights: 5 x 5 LED matrix - buttons: 2 push buttons - compass: detect magnetic fields - accelerometer: detect changes in the micro:bit® speed - GPIO: 17 general purpose input / output pins - Bluetooth: Bluetooth Low Energy (BLE)

VMM001



5 410329 673673



KIT

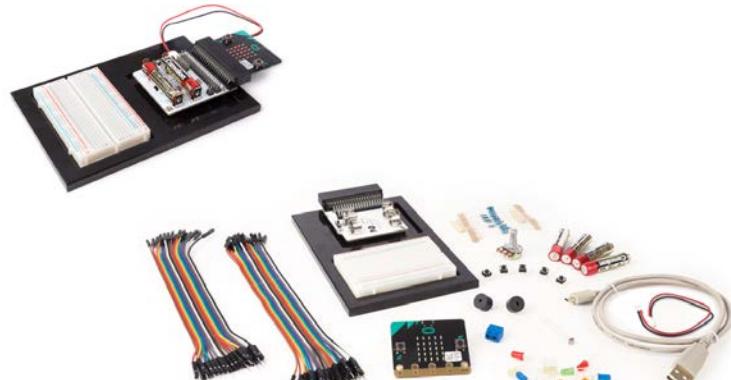
MICRO:BIT® ADVANCED KIT

processor: 16 MHz ARM Cortex - M0 microcontroller 32-bit processor · connectivity: Bluetooth Low Energy (BLE) · USB: USB 2.0 port and microUSB connector · GPIO: up to 17 general purpose input / output pins · RAM: 16 KB static RAM · power supply: micro:bit® project holder: 2 x AAA - micro usb connector · contains: USB cable, micro:bit® project holder, breakout board & components, micro:bit®, battery: 4 x AAA (LR03C) · micro:bit® hardware: lights: 5 x 5 LED matrix - buttons: 2 push buttons - compass: detect magnetic fields; accelerometer: detect changes in the micro:bit® speed - GPIO: 17 general purpose input / output pins - Bluetooth: Bluetooth Low Energy (BLE)

VMM002



5 410329 673680



N

MICROBIT® EDUCATION SMART ROBOT KIT

the robot can draw graphics with a pen · parts made of acrylic plastic · included: acrylic parts and screws ; motor driving shield ; 2 x servo motors ; micro:bit®

VMM500



5 410329 701260

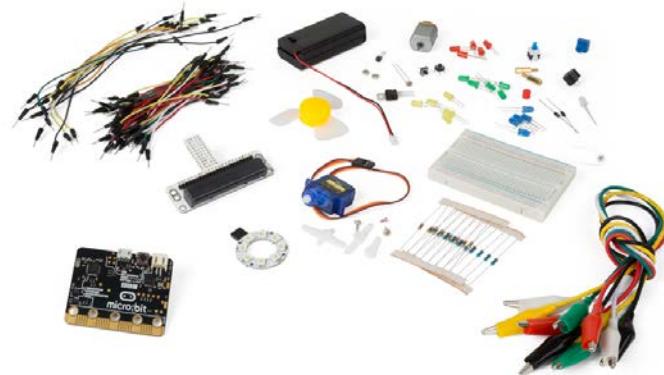




N MICROBIT® STARTER KIT

over 10 courses supported via our educational manual (download) · included: micro:bit®; breadboard; micro:bit® connector for breadboard; LED ring PCB; electronic components in organiser box; 65 x breadboard jumper wires; 5 x crocodile clip wires; AA battery holder

VMM501



N MICROBIT® TINKER KIT

plug & play hardware design · limitless creativity with different breakout sensor boards · included: micro:bit®: 1 pc; breakout mainboard for micro:bit®: 1 pc; USB cable: 1 pc; servo motor: 1 pc; PIR sensor breakout board: 1 pc; OLED breakout board: 1 pc; soil moisture breakout board: 1 pc; keypad breakout board: 1 pc; switch breakout board: 1 pc; 5 mm LED breakout board: 3 pcs; analog rotation breakout board: 1 pc; buzzer breakout board: 1 pc; AA battery holder: 1 pc

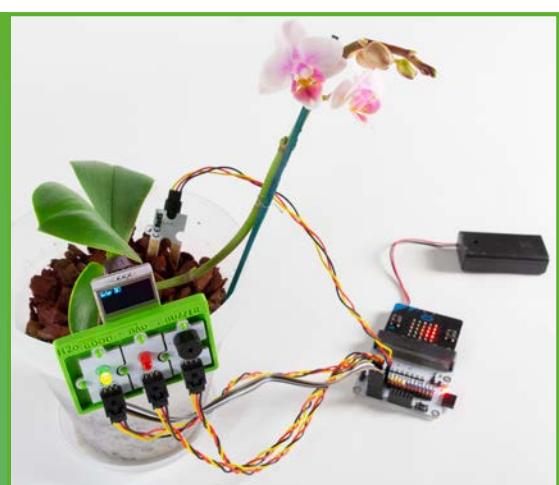
VMM502



KEEP YOUR PLANTS HAPPY WITH MICRO:BIT®

No more dead plants on our watch! With this ingenious project, you will be able to read whether or not your plant is moist enough or if it is in need of some water!

Use the soil moisture breakout board to inspect your plant's soil and make it report to your micro:bit®. If the plant is not happy and in desperate need of water, the red LED from the breakout board will light up and the OLED breakout board will tell you what's wrong. If all is well, the green LED will shine bright. All these components can be found in the micro:bit® tinker kit and the tutorial is available on manuals.velleman.eu!



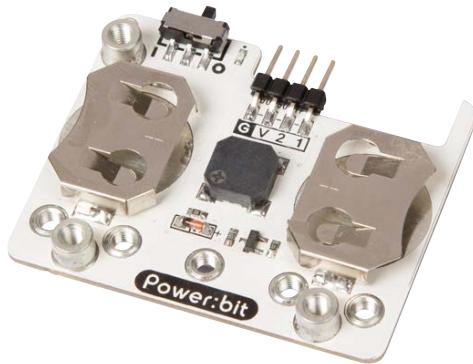
MICRO:BIT® - BBC



POWER:BIT SHIELD
FOR MICROBIT®
VMM005



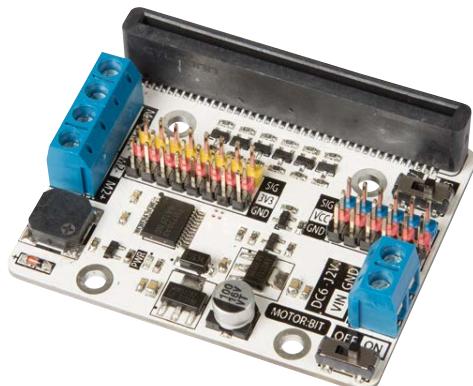
5 410329 701239



MOTOR SHIELD FOR
MICROBIT®
VMM006



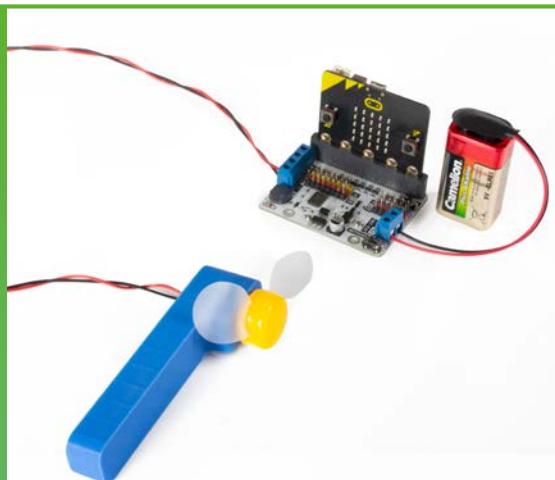
5 410329 701222



MAKE A MICRO:BIT® CONTROLLED FAN

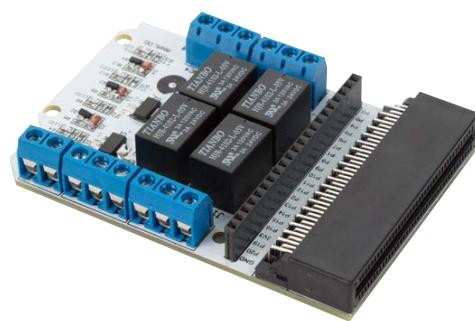
The ideal project for summer break or when you need to cool down! For this project, you will need to use the motor shield in combination with the propellor and the mini motor from the micro:bit® starter kit.

Tip: create a cool case for the fan by using some cardboard or a 3D printer!





**4 CHANNEL RELAY MODULE
FOR MICROBIT®
VMM400**



5 410329 697228

PCB CONNECTOR FOR MICRO:BIT®

Connector for the BBC micro:bit® which allows you to connect the micro:bit® IO to a PCB or other application. · dimensions: 21 x 57 x 9 mm

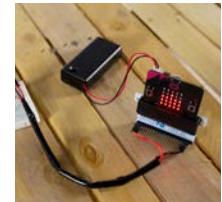
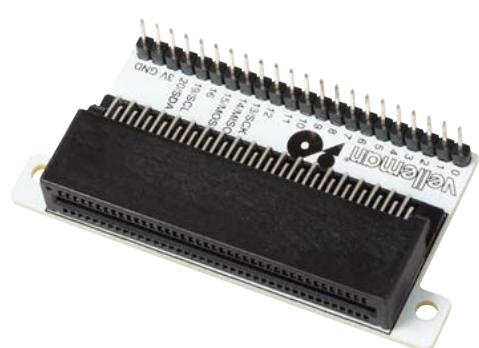
VMM003



5 410329 673932

GPIO ADAPTOR BOARD FOR MICROBIT®

VMM004



5 410329 697259

ACCESSORIES



GENERAL ACCESSORIES

RESISTOR TRIMMER SET

power: 0.1 W · resistance tolerance: ± 30% · operating voltage: 50 V max. · contents: 5 x 470 Ohm · 5 x 1k Ohm · 5 x 10k Ohm · 5 x 47k Ohm · 5 x 100k Ohm · 5 x 470k Ohm · 5 x 1M Ohm

K/TRIMSET1



5 410329 341817

TRANSISTOR SET

quantity: ± 100 pieces · contents: BC547B: ± 28 · BC557B: ± 28 · BC337: ± 12 · BC327: ± 12 · BC517: ± 6 · BC516: ± 6 · BD139: ± 4 · BD140: ± 4

K/TRANS1



5 410329 341824

SET OF RESISTORS (E3-SERIES)

quantity: 480 pieces (30 pcs per value) · series: E3 · number of values: 16 (from 10E to 1M) · power rating: 1/4W · tolerance: 5% · max. operating voltage: 250V

K/RES-E3



5 410329 241803

SET OF RESISTORS (E12-SERIES)

quantity: 610 pieces (10 pcs per value) · series: E12 · number of values: 61 (from 10E to 1M) · power rating: 1/4W · tolerance: 5% · max. operating voltage: 250V

K/RES-E12



5 410329 238391

SET OF 80 ASSORTED LEDs

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

K/LED1



5 410329 328610

SET OF 120 DIODES

contains: 2 x 110B2 · 50 x 1N4007 · 50 x 1N4148 · 14 x 1N5408 · 4 x 6A6

K/DIODE1



5 410329 341831

ELECTROLYtic CAPACITOR SET

quantity: 120 pieces · 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

K/CAP2



5 410329 327934

CERAMIC CAPACITOR SET

quantity: 224 pieces · contents: 21 x 10pF, 100pF, 1nF, 10nF, 100nF · 14 x 22pF, 47pF, 220pF, 470pF, 2.2nF, 4.7nF, 22nF, 47nF · 7 x 220nF · Max. operating voltage: 50 VDC

K/CAP1



5 410329 327927



SMD STORAGE BOX

dimensions: 132 x 65 x 23 mm ·
material: PP · transparent box
· 14 sealable compartments

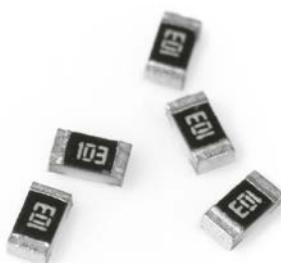
SMDBOX14



SMD "E12" RESISTORS SET - 0603

series: E12 · max. operating voltage: 50 V · max. dissipation: 100 mW · tolerance: 5% · dimensions: 1.6 x 0.8 mm

K/RES0603



5 410329 655136

SET OF MINI BREADBOARDS

- 55 TIE-POINTS - 5 PCS

voltage: max. 30 V · current: max. 3 A · dimensions: 30 x 20 x 10 mm

VTBB6



5 410329 664695

SET OF PLATES FOR MINI BREADBOARDS

- 4 PCS

contents: 2 plates with 468 studs; 2 plates with 234 studs · for: VTBB6

VTBB7



5 410329 664961

SET OF MINI BREADBOARDS

- 170 TIE-POINTS - 4 PCS

colour: transparent · voltage: max. 30 V · current: max. 3 A · dimensions: 45 x 35 x 10 mm

VTBB8



5 410329 672447

MINI BREADBOARD AND JUMPER WIRE PACK

84 x 56.6 x 11 mm and 46 x 33 x 8 mm · hole shape: square / round · tie points: 400 and 170 · jumper wires: PVC · wire made of tinned copper · length: from 0.8" to 5.0" · height: 0.25" · American wire gauge: #22 AWG

SD09N



5 410329 612351

SOLDERLESS BREADBOARD

- 830 HOLES + JUMPER WIRES - 140 PCS

voltage: max. 30 V · current: max. 3 A · base socket: 1 · bus strip: 2 · tie points: 830 · 14-pins IC capacity: 9 · binding post: 0 · dimensions: · breadboard: 165.5 x 56.5 x 8.5 mm · jumper wires box: 170 x 55 x 18 mm · wires are pre-stripped (7 mm) and bent under a 90° angle ·

VTBB11



5 410329 667467

ASSORTED JUMPER WIRE SET (350 PCS)

voltage: max. 30 V · current: max. 3 A · materials: wire: tinned copper · wire jacket: PVC · length: ± 4 to ± 125 mm · American wire gauge: #22 AWG · wire · blister with: 25 pieces of 14 different lengths · save time and enhance the layout of your PCB's

WJW351

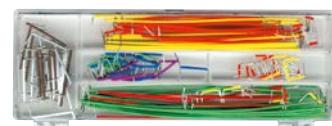


5 410329 664978

ASSORTED JUMPER WIRE SET (140PCS)

14 different lengths ranging from 3.5 to 125mm · 10 pieces each · different colours · save time and enhance the layout of your PCB's · comes in an attractive transparent box · wires are pre-stripped (6.35mm/0.25") and bent under a 90° angle

WJW70



5 410329 220129

USB 2.0 A PLUG TO USB 2.0 A PLUG / COPPER / BASIC / 1.8 M / GOLD PLATED / M-M
 quality: basic · length: 1.8 m · AWG: 24 + 28 · outside Ø: 3.8 mm · inner conductor: copper · colour: black · connectors: A: USB 2.0 A plug ; B: USB 2.0 A plug · applications: device A: notebook, PC ; device B: notebook, PC
PAC600B018N



5 410329 641832

HIGH SPEED HDMI® 2.0 WITH ETHERNET

length: 1.5 m · AWG: 30 · outside Ø: 6.0 mm · inner conductor: copper · signal bandwidth: 600 MHz · TMDS bandwidth: 18 Gbit/s · colour depth: 48 bit/px · rec. 2020 colour space · YCbCr 4:2:0 · 4 audio streams · 2 video streams (dual view) · high speed HDMI + ethernet · 18 Gbps / 600 MHz · supports: 3D, HD audio, 4K x 2K (2160p / 1080p), Dolby®
PAC415B015



5 410329 611767

USB 2.0 A PLUG TO USB 2.0 B PLUG / COPPER / BASIC / 2.5 M / GOLD PLATED / M - M

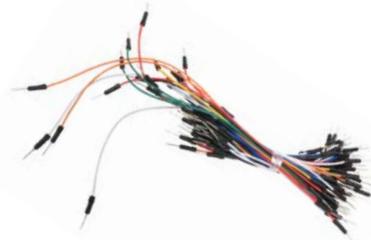
quality: basic · length: 2.5 m · AWG: 24 + 28 · outside Ø: 3.8 mm · inner conductor: copper · colour: beige · connectors: ; A: USB 2.0 A male plug ; B: USB 2.0 B male plug · applications: ; device A: notebook, PC ; device B: camera, camcorder, media player
PAC601B025N



5 410329 640231

SET OF AWG JUMPER WIRES - ONE PIN MALE TO MALE (65 PCS)

voltage: max. 30 V · current: max. 3 A · length and quantity: in different colours · 100 mm: 45 pcs · 150 mm: 10 pcs · 200 mm: 5 pcs · 250 mm: 5 pcs · 65 pcs of 22 AWG jumper wire · can be re-used
WJW009N



5 410329 667443

COMPACT CHARGER WITH MICRO-USB CONNECTOR

output voltage: 5 VDC · output current: max. 2.5 A · output power: max. 12.5 W · connection type: micro-USB (5 pin) · cable length: 1.40 m · power supply: 100-240 VAC, 50/60 Hz, 0.4 A · designed for a wide range of mobile phones, smartphones, media players, portable game devices, Raspberry Pi® 1, 2, 3 · with ferrite core

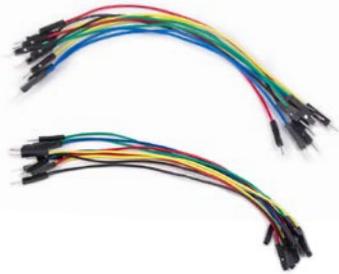


CODE SPECIFICATION

PSSEUSB26B	black			5 410329 668983
PSSEUSB26W	white			5 410329 679026

SET OF AWG BREADBOARD JUMPER WIRES - 5.9" - 10 PCS

voltage: max. 30 V · current: max. 3 A · length: 15 cm (5.9") · diameter: 22 AWG · insulation material: PVC · conductor material: copper · package contents: 10 pcs in plastic bag · pre-cut, pre-stripped and pre-formed wires simplify and speed up prototyping work · easy to connect and disconnect · these wires are compatible with standard breadboards that have 0.1" grids



CODE SPECIFICATION

WJW011	male to female			5 410329 665074
WJW012	female to female			5 410329 665081
WJW010	male to male			5 410329 665067

ALLBOT®
 EXPANDABLE ROBOT SYSTEM

meet the ALLBOTS.

The ALLBOT is a modular robot system with Arduino® compatible robot shields.

Both ALLBOTs are provided with an online manual that includes exemplary codes (Arduino® sketches) to help you program your Arduino® Uno or Arduino® Mega!

find more add-ons on allbot.eu



Find the ALLBOTS on [YouTube](#) and [Thingiverse](#)

Misprints and printing errors reserved. All photos and texts can be changed without prior notice. This publication replaces all previous editions.
© VELLEMAN NV | Responsible publisher: Erik Diels | Legen Heirweg 33, 9890 Gavere, België
www.velleman.eu | PHONE +32 (0)9 384 36 11 | FAX +32 (0)9 389 93 35

VELLEMAN NV

Legen Heirweg 33, 9890 Gavere, Belgium
www.velleman.eu

@ Sales@velleman.eu
☎ +32 (0)9 384 36 11
📠 +32 (0)9 389 93 35

CAT/VMA19EN



5 410329 711764

A standard barcode is located at the bottom right of the page. It consists of vertical black lines of varying widths on a white background. Below the barcode, the number "5 410329 711764" is printed in a small, sans-serif font.