

## Elenco Zoccoli/Periferiche

| I2C1                   |               |                    | 1                                   | 2                                   | 3                                   | 4                                   |
|------------------------|---------------|--------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Descrizione            | Codice        | Note               | GND                                 | +3.3v                               | SCL P22                             | SDA P21/27                          |
| Display 128x64         | SSD1306       | I2C                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Display 128x32         | SSD1306       | I2C                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Heart bit sensor       | KY-039 HW-502 | NO I2C – analogica | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | non utilizzato                      |
| Magic light cup module | KY-027 HW-499 | NO I2C             | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
|                        |               |                    |                                     |                                     |                                     |                                     |

| I2C2                           |                 |        | 1                                   | 2                                   | 3                                   | 4                                   | 5                                   | 6     |
|--------------------------------|-----------------|--------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------|
| Descrizione                    | Codice          | Note   | +3.3v                               | GND                                 | SCL P22                             | SDA P21/27                          | SDO P16                             | CS P0 |
| Giroscopo, accelerometro, ecc. | MPU-6050 GY-521 | I2C    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |       |
| Giroscopo, accelerometro, ecc. | GY-85           | I2C    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |       |
| Temp. Press. Altitude          | BM280           | I2C    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |       |
| Tri-axis compass               | GY273           | I2C    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |       |
| Laser sensor                   | VL53LO/IXV2     | I2C    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |       |
| temp. Press. Humid.            | BME280          | I2C    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |       |
| Light sensor                   | GY302 – BH1750  | I2C    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |       |
| Air quality, temp., humid.     | BMP680 – BMP680 |        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |       |
| RTC clock                      | DS1302          | NO I2C | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |       |
| Heart ECG sensor               | AD8232          | NO I2C | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |       |
| SMD RGB 3 colours led          | KY-009 HW-478   | NO I2C | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |       |
| RGB 3 colours led              | KY-016 HW-479   | NO I2C | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |       |
|                                |                 |        |                                     |                                     |                                     |                                     |                                     |       |

| I2C3         |         |                                               | 1                                   | 2                                   | 3                                   | 4       |
|--------------|---------|-----------------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---------|
| Descrizione  | Codice  | Note                                          | +3.3v                               | GND                                 | SDA P21/27                          | SCL P22 |
| Radar 24 GHz | LC1115H | NO I2C verificare alimentaz. conness. Diretta | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |         |



| RFID1            |        |      | 1                                   | 2                                   | 3                                   | 4                                   | 5         | 6                                   | 7                                   | 8                                   |
|------------------|--------|------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-----------|-------------------------------------|-------------------------------------|-------------------------------------|
| Descrizione      | Codice | Note | SDA P5                              | SCK P18                             | MOSI P23                            | MISO P19                            | IRQ P0    | GND                                 | RST P4                              | +3.3v                               |
| Rfid card reader | RC522  |      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | non usato | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

| SV1         |        |      | 1   | 2   | 3   |
|-------------|--------|------|-----|-----|-----|
| Descrizione | Codice | Note | P26 | +5V | GND |
| Servomotore | MG90S  |      |     |     |     |

| MT1         |        |                           | 1 | 2   |
|-------------|--------|---------------------------|---|-----|
| Descrizione | Codice | Note                      | + | GND |
| Motore      |        | motore elettrico 12v max. |   |     |

| TRM1         |         |      | 1                                   | 2                                   | 3                                   |
|--------------|---------|------|-------------------------------------|-------------------------------------|-------------------------------------|
| Descrizione  | Codice  | Note | GND                                 | P34                                 | +3.3v                               |
| Potenzimetro | 10 Kohm |      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

**Nota:** nel caso il potenziometro non venga saldato alla BDS, può accogliere gli stessi sensori di DA2. Non **vanno in conflitto** tra di loro.

| GPS1            |               |      | 1                                   | 2                                   | 3                                   | 4                                   |
|-----------------|---------------|------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Descrizione     | Codice        | Note | +3.3v                               | RX P18/27                           | TX P17/35                           | GND                                 |
| GPS             | NEO6MB2       |      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Two led colours | KY-029 HW-477 |      |                                     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

| GPS2                  |               |      | 1                                   | 2                                   | 3                                   | 4                                   | 5                                   |
|-----------------------|---------------|------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Descrizione           | Codice        | Note | +3.3v                               | GND                                 | TX P17/35                           | RX P18/27                           | Pps P23                             |
| GPS                   | NEO7          |      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | non utilizzato                      |
| Sonar                 | RCWL-0516     |      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | non utilizzato                      | non utilizzato                      |
| SMD RGB 3 colours led | KY-009 HW-478 |      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| RGB 3 colours led     | KY-016 HW-479 |      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

| AD1A | 1 | 2 | 3 | 4 |
|------|---|---|---|---|
|------|---|---|---|---|

| Descrizione         | Codice                 | Note | P35            | GND | Vcc   | P34     |
|---------------------|------------------------|------|----------------|-----|-------|---------|
| Big Sound           | KY-037 - HW485         |      | digit.         | --- | +3,3v | analog. |
| Small Sound         | KY-038 - HW496         |      | digit.         | --- | +3,3v | analog. |
| Linear Hall         | KY-024 - SS49E - HW509 |      | digit.         | --- | +3,3v | analog. |
| Metal Touch         | KY-036 - HW494         |      | digit.         | --- | +3,3v | analog. |
| Magnetic Spring     | KY-025 - HW484         |      | digit.         | --- | +3,3v | analog. |
| Flame               | KY-026 - HW491         |      | digit.         | --- | +3,3v | analog. |
| Digital Temperature | KY-028 - HW503         |      | digit.         | --- | +3,3v | analog. |
| Water sensor        | Sen18 HW-038           |      | non utilizzato | --- | +3,3v | analog. |
| Heart bit sensor    | KY-018 HW-502          |      | non utilizzato | --- | +3,3v | analog. |
|                     |                        |      |                |     |       |         |

**Nota:** AD1A è alternativo a AD1B. Non possono essere usati contemporaneamente.

| AD1B                 |               |                   | 1     | 2   | 3      | 4       |
|----------------------|---------------|-------------------|-------|-----|--------|---------|
| Descrizione          | Codice        | Note              | Vcc   | GND | P35    | P34     |
| Gas sensor           | MQ2 - KY030   | alimentato a + 5v | +5v   | --- | digit. | analog. |
| Gas sensor           | MQ3           | alimentato a + 5v | +5v   | --- | digit. | analog. |
| Gas sensor           | MQ4           | alimentato a + 5v | +5v   | --- | digit. | analog. |
| Gas sensor           | MQ5           | alimentato a + 5v | +5v   | --- | digit. | analog. |
| Gas sensor           | MQ6           | alimentato a + 5v | +5v   | --- | digit. | analog. |
| Gas sensor           | MQ7           | alimentato a + 5v | +5v   | --- | digit. | analog. |
| Gas sensor           | MQ8           | alimentato a + 5v | +5v   | --- | digit. | analog. |
| Gas sensor           | MQ9           | alimentato a + 5v | +5v   | --- | digit. | analog. |
| Gas sensor           | MQ135         | alimentato a + 5v | +5v   | --- | digit. | analog. |
| Encoder              | HC020-K       |                   | +3,3v | --- |        |         |
| Soil moisture sensor | HW-050        |                   |       | --- |        |         |
| Two colours led      | KY-011 HW-480 |                   | +3,3v | --- | digit. |         |
|                      |               |                   |       |     |        |         |

**Nota1:** AD1B è alternativo a AD1A. Non possono essere usati contemporaneamente.

**Nota 2:** per i sensori di gas, P34 è una porta ANALOGICA

**Nota 3:** le porte P34 e P35 sono solo di input, quindi non possono essere usati display, relè, ecc.

**Nota 4:** i sensori di gas richiedono l'alimentazione a +5v, che può danneggiare ESP32x!

| BZ1         |        |      | 1   | 2     | 3   |
|-------------|--------|------|-----|-------|-----|
| Descrizione | Codice | Note | GND | +3.3v | P26 |
|             |        |      |     |       |     |

|                                       |                        |                        |                                     |                                     |                                     |
|---------------------------------------|------------------------|------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Passive buzzer module                 | KY-006 HW-508          | nativo x questa porta  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Active buzzer module                  | KY-012 HW-512          | nativo x questa porta  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Tap Module                            | KY-031 – HW500         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Shock sensor                          | KY-002 – HW513         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Tilt switch                           | KY-020 – HW501         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| IR emission led                       | KY-005 - HW489         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Relay                                 | KY-019 - HW482         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Temperature Humidity                  | KY-015 – DHT11 – HW507 |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Button                                | KY-004 - HW-483        |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Laser emit led                        | KY-008 - HW493         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 433 MHz transmitter (TX)              |                        | portata ridotta a 3,3v | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Tracking                              | KY-033 - HW511         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Photo interrupt                       | KY-010 – HW487         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| IR Receiver                           | KY-022 - HW490         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Mercury tilt module                   | KY-017 - HW505         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Hall magnetic sensor                  | KY-035 – HW492 – HW495 |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Reed switch sensor                    | KY-021 – HW497         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Avoiance                              | KY-032 - HW201         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Digital Temperature                   | KY-001 – 18B20 - HW506 | Da verificare          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Hall magnetic sensor                  | KY-003 HW-495          |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Analogue temperature module           | KY-013 HW-498          | porta analogica        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Temperature Humidity                  | DHT22                  |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| LDR – photoresistor – analogue output | KY-018 – HW486         | porta analogica        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
|                                       |                        |                        |                                     |                                     |                                     |

Nota : stessa disposizione dei pin di DA2, DA3, DA4

|     |   |   |   |
|-----|---|---|---|
| DA1 | 1 | 2 | 3 |
|-----|---|---|---|

| Descrizione           | Codice            | Note                        | Vcc                                 | P17                                 | GND                                 |
|-----------------------|-------------------|-----------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| PIR – presence        | HC-SR501 – KY-007 | instabile a +3,3v           | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| PIR – presence        | HC_SR505          | da verificare               | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Laser detector        |                   | richiede diodo laser KY-008 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Sonar sensor          | RCLW-0516         |                             | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Touch sensor          | TTP223            |                             | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| RGB led matrix 8x8    | WS2812            |                             | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Laser receiver module |                   |                             | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Seven colours led     | KY-034 HW-481     |                             |                                     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Potentiometer         | 10 Kohm           |                             | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
|                       |                   |                             |                                     |                                     |                                     |

| DA2                         |                        |                        | 1                                   | 2                                   | 3                                   |
|-----------------------------|------------------------|------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Descrizione                 | Codice                 | Note                   | GND                                 | +3.3v                               | P35                                 |
| Tap Module                  | KY-031 – HW500         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Shock sensor                | KY-002 – HW513         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Tilt switch                 | KY-020 – HW501         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| IR emission led             | KY-005 - HW489         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Temperature Humidity        | KY-015 – DHT11 – HW507 |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Button                      | KY-004 - HW-483        |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Laser emit led              | KY-008 - HW493         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 433 MHz transmitter (TX)    |                        | portata ridotta a 3,3v | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Tracking                    | KY-033 - HW511         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Photo interrupt             | KY-010 – HW487         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Mercury tilt module         | KY-017 - HW505         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Hall magnetic sensor        | KY-035 – HW492 – HW495 |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Reed switch sensor          | KY-021 – HW497         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Avoiance                    | KY-032 - HW201         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Digital Temperature         | KY-001 – 18B20 - HW506 | Da verificare          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Hall magnetic sensor        | KY-003 HW-495          |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Analogue temperature module | KY-013 HW-498          | porta analogica        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

|                                       |                |                 |                                     |                                     |                                     |
|---------------------------------------|----------------|-----------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Temperature Humidity                  | DHT22          |                 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| LDR – photoresistor – analogue output | KY-018 – HW486 | porta analogica | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Heart bit sensor                      | MRS025A        | porta analogica | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
|                                       |                |                 |                                     |                                     |                                     |

Nota 1: stessa disposizione dei pin di BZ1, DA3, DA4

Nota 2: solo input (sensori)

| DA3                         |                        |                        | 1                                   | 2                                   | 3                                   |
|-----------------------------|------------------------|------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Descrizione                 | Codice                 | Note                   | GND                                 | Vcc                                 | P27                                 |
| Tap Module                  | KY-031 – HW500         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Shock sensor                | KY-002 – HW513         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Tilt switch                 | KY-020 – HW501         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| IR emission led             | KY-005 - HW489         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Relay                       | KY-019 - HW482         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Temperature Humidity        | KY-015 – DHT11 – HW507 |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Button                      | KY-004 - HW-483        |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Laser emit led              | KY-008 - HW493         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 433 MHz transmitter (TX)    |                        | portata ridotta a 3,3v | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Tracking                    | KY-033 - HW511         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Photo interrupt             | KY-010 – HW487         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| IR Receiver                 | KY-022 - HW490         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Mercury tilt module         | KY-017 - HW505         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Hall magnetic sensor        | KY-035 – HW492 – HW495 |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Reed switch sensor          | KY-021 – HW497         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Avoiance                    | KY-032 - HW201         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Digital Temperature         | KY-001 – 18B20 - HW506 | Da verificare          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Hall magnetic sensor        | KY-003 HW-495          |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Analogue temperature module | KY-013 HW-498          | porta analogica        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Temperature Humidity        | DHT22                  |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

|                                       |                |                 |                                     |                                     |                                     |
|---------------------------------------|----------------|-----------------|-------------------------------------|-------------------------------------|-------------------------------------|
| LDR – photoresistor – analogue output | KY-018 – HW486 | porta analogica | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Passive buzzer module                 | KY-006 HW-508  |                 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Active buzzer module                  | KY-012 HW-512  |                 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
|                                       |                |                 |                                     |                                     |                                     |

Nota 1: stessa disposizione dei pin di BZ1, DA2, DA4

Nota 2: alimentazione a +3.3v o +5v

| DA4                         |                        |                        | 1                                   | 2                                   | 3                                   |
|-----------------------------|------------------------|------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Descrizione                 | Codice                 | Note                   | GND                                 | Vcc                                 | P18                                 |
| Tap Module                  | KY-031 – HW500         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Shock sensor                | KY-002 – HW513         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Tilt switch                 | KY-020 – HW501         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| IR emission led             | KY-005 - HW489         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Relay                       | KY-019 - HW482         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Temperature Humidity        | KY-015 – DHT11 – HW507 |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Button                      | KY-004 - HW-483        |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Laser emit led              | KY-008 - HW493         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 433 MHz transmitter (TX)    |                        | portata ridotta a 3,3v | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Tracking                    | KY-033 - HW511         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Photo interrupt             | KY-010 – HW487         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| IR Receiver                 | KY-022 - HW490         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Mercury tilt module         | KY-017 - HW505         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Hall magnetic sensor        | KY-035 – HW492 – HW495 |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Reed switch sensor          | KY-021 – HW497         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Avoiance                    | KY-032 - HW201         |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Digital Temperature         | KY-001 – 18B20 - HW506 | Da verificare          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Hall magnetic sensor        | KY-003 HW-495          |                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Analogue temperature module | KY-013 HW-498          | porta analogica        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |



|                                       |                |                       |                                     |                                     |                                     |
|---------------------------------------|----------------|-----------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Temperature Humidity                  | DHT22          |                       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| LDR – photoresistor – analogue output | KY-018 – HW486 | porta analogica       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Passive buzzer module                 | KY-006 HW-508  | nativo x questa porta | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Active buzzer module                  | KY-012 HW-512  | nativo x questa porta | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
|                                       |                |                       |                                     |                                     |                                     |

Nota 1: stessa disposizione dei pin di BZ1, DA2, DA3  
Nota 2: alimentazione a +3.3v o +5v

| RELAY         |        |      | 1                                   | 2                                   | 3                                   | 4                                   | 5                                   | 6                                   | 7                                   | 8                                   | 9                                   | 10                                  |
|---------------|--------|------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Descrizione   | Codice | Note | GND                                 | RL1                                 | RL2                                 | RL3                                 | RL4                                 | RL5                                 | RL6                                 | RL7                                 | RL8                                 | +5V                                 |
| Modulo 8 relè |        |      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Modulo 6 relè |        |      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |                                     | <input checked="" type="checkbox"/> |
| Modulo 4 relè |        |      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |                                     |                                     |                                     | <input checked="" type="checkbox"/> |
| Modulo 2 relè |        |      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |                                     |                                     |                                     |                                     |                                     | <input checked="" type="checkbox"/> |
|               |        |      |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |

Nota 1: Lo zoccolo RELAY e LED sono correlati e ricevono le stesse informazioni contemporaneamente.  
Nota 2: le connessioni saranno effettuate sullo zoccolo "DATA". Non possono usare le porte P34, P35, P36, P39 (solo input)

| LED                            |        |      | 1     | 2                                   | 3                                   | 4                                   | 5                                   | 6                                   | 7                                   | 8                                   | 9                                   |
|--------------------------------|--------|------|-------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Descrizione                    | Codice | Note | COM   | LD1                                 | LD2                                 | LD3                                 | LD4                                 | LD5                                 | LD6                                 | LD7                                 | LD8                                 |
| Modulo 8 led con anodo comune  |        |      | +3,3v | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Modulo 8 led con catodo comune |        |      | GND   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
|                                |        |      |       |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |

Nota 1: Lo zoccolo RELAY e LED sono correlati e ricevono le stesse informazioni contemporaneamente.  
Nota 2: la porta COM riceverà + 5v per i moduli led con anodo comune; GND (-) per i moduli led con catodo comune  
Nota 3: le connessioni saranno effettuate sullo zoccolo "DATA". Non possono usare le porte P34, P35, P36, P39 (solo input)

| SWITCH                |        |      | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |
|-----------------------|--------|------|-----|-----|-----|-----|-----|-----|-----|-----|
| Descrizione           | Codice | Note | LD1 | LD2 | LD3 | LD4 | LD5 | LD6 | LD7 | LD8 |
| Modulo con 8 pulsanti |        |      |     |     |     |     |     |     |     |     |
|                       |        |      |     |     |     |     |     |     |     |     |

Nota: le connessioni saranno effettuate sullo zoccolo "DATA".

