



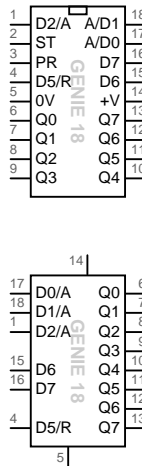
Capabilities

The following table outlines the capabilities of this GENIE device:

Type	GENIE
Version	2
Signals	
Pins	18
Analogue inputs	3
ADC resolution	8 bits
Digital inputs	6
Digital outputs	9
Features	
Parallel processing	Yes
Plug and play	Yes
Debug live	Yes
Device control	Yes
Sensor calibration	Yes
RTTTL music	Yes
16 channel MIDI music	Yes
Sound effects	Yes
PWM outputs	8
Servo motor control	8
Infra-red control	Yes
1-Wire® and I ² C	Yes
Ultrasonic sensing	Yes
Events and interrupts	Yes
1-second clock	Yes
Programming	
Program memory	10 K bytes
Variables	26 (A-Z)
Data (array) memory	256
EEPROM locations	16
Program start limit	16
Subroutine limit	No limit
Call stack limit	32
Electrical	
PICmicro® device	16F1847
Power supply	1.8-5.5V
Pin current limit	25mA
Total current limit	150mA

Component

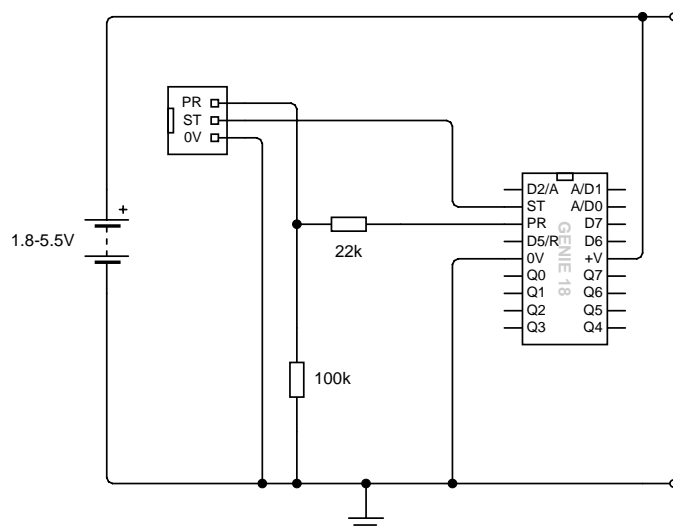
The GENIE 18 microcontroller has 18 legs (known as pins) and these are used as follows (a simplified view is also shown):



Pin	Description
1	Analogue input A2 or digital input D2
2	Status output (ST)
3	Programming input (PR)
4	Digital input D5 or (optional) reset
5	Ground (zero volt) supply voltage
6	Digital output Q0
7	Digital output Q1
8	Digital output Q2
9	Digital output Q3
10	Digital output Q4
11	Digital output Q5
12	Digital output Q6
13	Digital output Q7
14	Power supply voltage (1.8-5.5V only)
15	Digital input D6
16	Digital input D7
17	Analogue input A0 or digital input D0
18	Analogue input A1 or digital input D1

Circuit

The required circuit for a GENIE 18 is shown below. It includes a download socket and two resistors. See also 'Reset' overleaf.





Notes

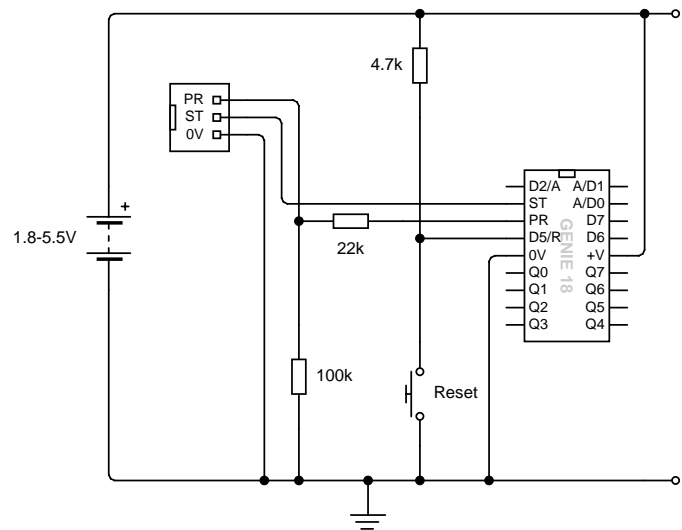
Reset

Pin 4 can be configured to be either an external reset pin or digital input G3. When configured as a reset pin, the microcontroller will reset whenever that pin goes low.

The recommend minimum circuit including a reset switch is shown on the right.

You can configure the reset pin by choosing the **Advanced** option in the **Program Settings** window and then clicking on **Reset**.

The GENIE 18 microcontroller has the reset option enabled by default for compatibility with (version 1) GENIE E18 devices.



Turbo

The GENIE 18 microcontroller can operate at two different speeds: normal and turbo. In turbo mode, the internal oscillator within the microcontroller will be run at a faster (32 MHz rate), whereas in the normal speed mode, the oscillator will be at 16 MHz. Note that one consequence of running in turbo speed mode is that the minimum device supply voltage increases from 1.8V to 2.5V.

You can enable turbo speed mode by choosing the **Advanced** option in the **Program Settings** window and then clicking on **Turbo**.

