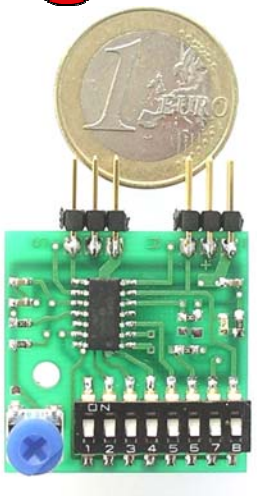
clickPAN-PRO

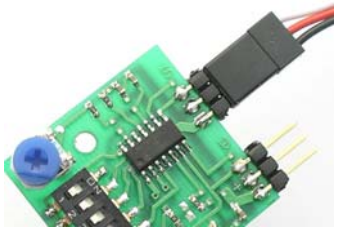


clickPAN-PRO is designed for Kite and Balloon aerial photography rigs, controlling shutter, pan, and tilt through a defined sequence set with switches.

The unit is shown on the left. At the top are two pairs of servo sockets for interfacing, and along the bottom a rotary adjustment & switches for unit configuration.

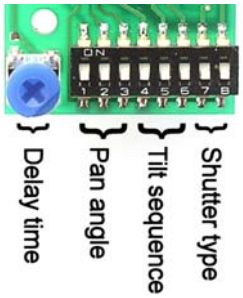
Attach clickPAN-PRO to your rig with a nylon M3 or 4-40 bolt through the hole provided.

Connections



The unit needs to be connected via the 4 3pin sockets at the top of the picture, A, S, P, T.
Each socket is like a standard servo socket with + (red) in the centre, signal (white/yellow) nearest the A, S, P, T, letter and – (black) at the right as you look at the pictures shown.
1 A: POWER (also marked with a + and -)
Leaving pin A unconnected, connect + & – to a battery from 3 to 5.5volts. We recommend 3xAA/AAA batteries or a 1amp 5volt regulated supply.
2 S: SHUTTER (trigger the camera)
clickPAN-PRO supports 3 methods of triggering the camera: standard servo 'finger', IR release, or SDM/CHDK. Attach either a servo, or special leads clickPAN-proIR, and clickPAN-proCHDK as required.
3 P: PAN (rotation around the horizon)
Connect a servo modified for 360˚ rotation, sometimes called a CRS or robot servo. Note: You cannot connect a "standard" servo here.
4 T: TILT (movement from horizon to ground)
Connect a "standard" servo to this socket.

Operation
The unit is configured with the controls along the bottom edge.
NOTE: These can be altered with the power on except S8 which is hardware dependant. Do not adjust S8 with the power on.



SHUTTER TYPE:
Servo and Reverse makes the servo "nod" in one and the opposite direction, making rig configuration easier.
IR LED allows operation with Canon, Pentax, Nikon, Sony, & Samsung IR enabled cameras.
SDM/CHDK enables operation with compatible Canon cameras.
Note: An accessory cable is required for IRLED or SDM/CHDK operation.

SHUTTER	S7	S8
Reverse	ON	ON
Servo	OFF	ON
IR LED	ON	OFF
SDM/CHDK	OFF	OFF

There is a red LED to show operation. In servo and reverse servo mode the LED is on continuously. In IR LED and SDM/CHDK the LED flashes every time the shutter is released.

DELAY TIME: Rotary adjustment for the time between shutter activation from 1.3 to 12 seconds. Not all configurations make sense at 1.3seconds so we suggest you start at ~5 seconds. Once set up is complete you can review this, so the rig has time to settle between movements.

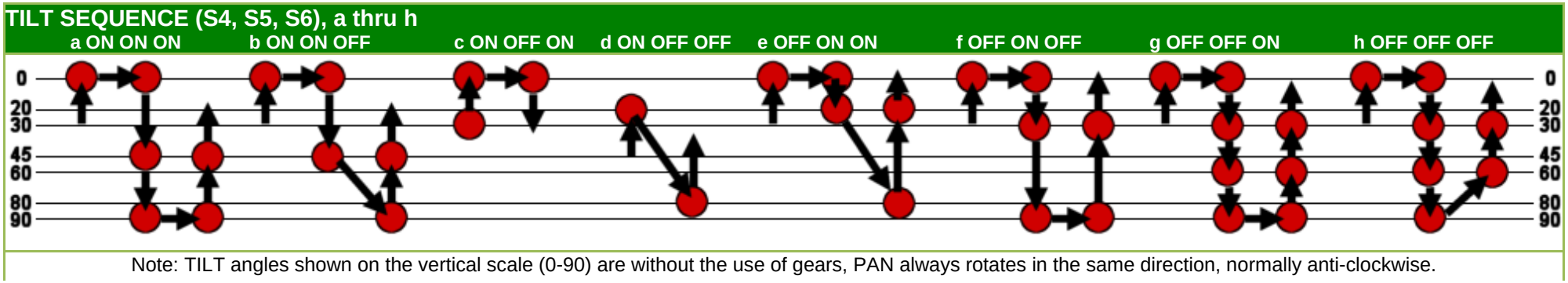
PAN ANGLE:
The approximate angles given in the table are without any gearing. Designs with gearing will probably use settings nearer the bottom of the table.

Servos vary greatly; the figures are a guide only, experiment to find the best settings.

PAN ANGLE	S1	S2	S3
continuous	ON	ON	ON
approx 25˚	ON	ON	OFF
approx 40˚	ON	OFF	ON
approx 60˚	ON	OFF	OFF
approx 90˚	OFF	ON	ON
approx 140˚	OFF	ON	OFF
approx 220˚	OFF	OFF	ON
approx 360˚	OFF	OFF	OFF

Continuous rotates all the time and is provided for some specialised rigs. Images will be taken when the camera is still moving. A slower continuous mode can be achieved with the 360˚+ setting and the DELAY set to 1.3seconds.

NOTE: With continuous and IR LED option, the rotation will judder when the camera is triggered, we recommend using a separate gentLED-SHUTTER and Servo SHUTTER TYPE to stop this.



Note: TILT angles shown on the vertical scale (0-90) are without the use of gears, PAN always rotates in the same direction, normally anti-clockwise.

TILT SEQUENCE:
Determines the “path” the unit follows when taking pictures, illustrated above. 8 options are available (a thru h), they are set with S4, S5 & S6. The diagram shows the paths achieved with “pan” to the right and “tilt” up & down. A picture is taken at each red dot.

These sequences have been chosen to give the best coverage for both landscape and portrait rigs with different focal length lenses.
For a sequence with “no tilt” simply remove the plug to the tilt servo.
Remember the exact position of the “tilt” servo can be set by moving the rig with respect to the servo output arm by repositioning the ‘horn’.

Adjustment Mode
This mode is provided to help set-up clickPAN-PRO to your rig. To enter the mode, disconnect the SHUTTER then move switch 8 after the power is applied and wait for the next PAN. Operation will change as follows:

TILT (ref)	S4	S5	S6
0˚ all but d	ON	ON	ON
20˚ e	ON	ON	OFF
30˚ c e f g	ON	OFF	ON
45˚ a b	ON	OFF	OFF
60˚ g h	OFF	ON	ON
80˚ d e	OFF	ON	OFF
90˚ a b f g h	OFF	OFF	ON
TILT off	OFF	OFF	OFF

DELAY works as normal as does PAN, but there will be a PAN with every DELAY to help check PAN operation.

S7 operates the shutter servo but it no longer “nods”, but stays “fixed” in either the normal or reverse position to help with mechanical positioning.

In adjustment mode the SEQUENCE switches now set a fixed TILT. This is used when configuring the rig hardware to give a fixed servo position. These are referenced to the 8 sequences a to h in the table in the previous section. To exit the special adjustment mode switch the unit off.

IMPORTANT NOTE: Please be careful with the servo and battery connections! The unit will survive inverting the connections, but may not survive inverted and misplaced by 1 pin!

For Advanced Users
clickPAN-PRO provides a very flexible platform for rig control.
Not all combinations of settings may appear useful, but they are provided to give users “options”.
For example most users will require the camera to have stopped moving before the shutter is released,
but this is not a limitation of the device as some users experiment with fast image capture whilst the
rig continues to move.

Specification

Supply Voltage	3 to 5.5V. IR Range [if used] will reduce below 4V (absolute maximum voltage, 6.0V)
Supply Current	Maximum 20mA, but remember servos will draw considerably more.
Weight & Size	5 grams. 30x30x10mm (excluding connections)

Diagnostics
Test the unit with servos on a bench rather than already in a rig. Start simple and add parts as you become familiar with operation.
If experimenting with the SEQUENCE, use SDM/CHDK mode as the red LED gives an indication of shutter release rather than using a 3rd servo.