



clickPAN-SDM allows a SDM enabled Canon camera to control up to 2 servo motors using the AF assist lamp on the front of the camera.

## SET UP CONSIDERATIONS

There are a number of scripts and application notes available for this device, but this manual is designed for those wanting to develop their own scripts and applications. Please read the quick reference manual first to familiarise yourself with the unit cables, connectors & operation.

## uBASIC SCRIPTING

The 2 servos are independently controlled from the camera script with the `send_data(S1,S2)` command. Data is interpreted in these modes:

**SERVO** (-100 to +100): Controls a standard servo in units of 1 degree deviation from the idle or centre position. All servos will accept values of +-45degrees, many standard size servos up to +-90degrees

**PULSE** (+-101 to 110): Controls a CRS either CW or CCW. 101 moves the servo by about 5 degrees, up to 110 at ~200degrees. Negatives invert direction. Exact movement is determined by servo type & gearing.

**ROTATE** (+-111 to 122) Sends a continuous series of pulses so the CRS rotates slowly until a further command is sent. Can be used to turn a CRS into a motor. One rotation from 120 to 3 seconds in 12 settings. Sending numbers in the SERVO range can result in even faster speeds. Note: 127 can be used to stop the rotation.

**THRU** (+-124,5 & 6) Passes the S0 servo input through to the output. (in all cases the negative value inverts the output). 126 is standard output 125 stretches the servo output so it covers 180degrees.

124 allows a logic output whose value is determined by the S0 value.

**LOGIC** (+-127) A simple logic high (-127) or low (127) on the output.

**CONTROL** There are three other commands:

123: Puts a servo back to the PARK position, -123 is twice as *strong*.

128: Null, does nothing. Useful if sending data to one servo and the other servo is to be left unaffected.

127: Stop Pulses. Useful to stop ROTATION or freeze S0.

## REFERENCE TABLE

### HINTS and TIPS

This device is only compatible with SDM 1.83 and above.

Do not expect any output from the device until after the first SDM command is received!

Transmitting data with the `send_data` command takes around 0.5seconds. Try to minimise unnecessary use to save time and batteries!

Whether + or – numbers produce CW or CCW motion depends on the mechanical construction, gearing, and servo type employed. Scripts can be designed round this by using SDM “parameters”.

The first movement after power-on in SERVO may be rather jerky. This can be minimised by adding a 123, PARK into the script initialisation. If using 180 degree servos you should use the longer -123 PARK. Always follow with a wait in the script.

You can tell how far a servo can rotate by moving the output shaft with your fingers with no power applied.

mode	value	action
	-128	NULL- do nothing
logic	-127	LOGIC = 1
THRU	-126	THRU S0 inverted
	-125	THRU S0 invert&stretch
	-124	THRU S0 invert switch
	-123	PARK servo at idle x2
ROTATE	-122	fastest
	-121	12 speeds with
	-112	reverse direction
	-111	slowest
PULSE	-110	more
	-109	10 moves with
	-102	reverse direction
	-101	less
	-100	
	-99	angle in degrees,
	-2	servos may vary
SERVO	-1	
	0	Note: only +-45deg
	1	is guaranteed on
	2	all servo models
	99	
	100	
PULSE	101	less
	102	10 moves in
	109	standard direction
	110	more
ROTATE	111	slowest
	112	12 speeds with
	121	reverse direction
	122	fastest
	123	PARK servo at idle
THRU	124	THRU S0 SWITCH
	125	THRU S0 & STRETCH
	126	THRU S0
logic	127	LOGIC=0/stop pulses