

TRICKSTIK

USER DOCUMENTATION

Dear Customer,

Thankyou for purchasing the Trickstick.

You will probably only need to read this manual once, but we strongly recommend that in your own interests you do not read it less than once.

THE TWO MODES OF USE

The Trickstick can be set up in two different ways called "Speed-control mode" and "Stop-go mode".

Speed-Control Mode

This is the mode of operation for which the Trickstick has primarily been designed and is what sets the Trickstick apart from other joystick systems. In this mode, small variations of finger pressure on the four sensors at the upper end of the Trickstick cause corresponding small variations in speed and direction of the objects (eg Spacecraft) on the TV screen. All software supplied for the Trickstick is specifically designed to operate in this mode. In addition however, it is a surprising fact that many existing Spectrum games (Microgen's Planetoids for example) used with the Trickstick in this mode, give a considerable degree of speed control even though they were only written for the usual Stop-Go control achieved with the keyboard or other joysticks.

Stop-Go Mode

This mode of use has been provided to accommodate those existing games which either do not benefit from continuous control of speed and direction or which have been written in such a way that control of speed does not occur in Speed-Control mode.

Although such games can be used in Speed-Control mode, with Trickstick sensors set near maximum sensitivity, a snappier action can be achieved in Stop-Go mode.

RECOMMENDED GRIP:

Right-Handed Persons

Right hand grasping upper part of stick with thumb centrally placed between the move-right and move-left sensors situated on the end-face of the Trickstick.

Forefinger and middle-finger over move-forward and move-backward sensors situated towards the upper end of the Trickstick.

Left hand grasping lower half of stick with forefinger and middle-finger reaching round to Fire 1 and Fire 2 sensors.

The bottom of the Trickstick resting on the lap to balance the varying pressure applied by the thumb at the other end.

Left-Handed Persons

Left hand as for right-handed persons' right hand.

Right hand as for right-handed persons' left hand, although many left handed people prefer to use their thumb on the Fire sensors.

SETTING OF SELECTION PLUGS AND SENSITIVITY CONTROL

SETTING FOR SPEED CONTROL MORE

Remove power lead from the Spectrum.

Plug Trickstick interface into Spectrum rear port. (See technical specification section of this manual for use of Trickstick with other peripherals such as Interface 2 and Microdrives, ZX Printer etc.) Place one of the two little selector plugs situated on the top of the Trickstick interface (at other end of the cable from the Trickstick itself) into the position marked "Proportional". Place the other selection plug into the position marked "Player 1". The sensitivity of the six sensors to the pressure (or more accurately to the proximity) of your fingers is adjusted by turning the small plastic knob protruding from the back of the Trickstick -(directly opposite the move-forward sensor).

Correct adjustment greatly affects the degree of proportional (ie speed etc) control attained and may be achieved as follows:

Load your software. (Initially this will be the Trainer tape accompanying the Trickstick).

Progress through the program until aircraft appear on the screen.

Turn the sensitivity control anti-clockwise as far as it will go for minimum sensitivity.

Press forefinger onto move-forward sensor. If no motion occurs on the screen then increase sensitivity by turning the knob clockwise a little way and try again. Continue this until motion of the aircraft is achieved in response to finger-pressure.

The sensitivity should be further increased to the point where the thumb centrally placed at rest over the end of the Trickstick has no effect on the aircraft (ie the aircraft moves in a straight line when the move-forward sensor is pressed) until the thumb is rolled slightly to right or left whereupon the aircraft should veer slightly in the corresponding direction.

Oversensitivity (ie knob too far clockwise) will make it difficult to go in a straight line.

Under-sensitivity (ie knob too far anti-clockwise) will create a dead area over which motion of your thumb will have no effect, thus reducing your control.

SETTING FOR STOP-GO MODE

This is the same as for speed-control mode (above) with the following exceptions:

The leftmost selector plug is placed into position marked "non-proportional". The sensors should be adjusted near to maximum sensitivity (according to taste) which will be somewhere near the extreme clockwise travel of the

adjusting knob. (Note that rotation of the knob to the limit may cause the sensors to become so touchy that they will respond to capacitive effects other than those from your fingers, with the result that the aircraft will go berserk.

THE REMAINDER OF THIS TEXT MAY BE IGNORED

TECHNICAL SPECIFICATION

SENSORS

Accurate sensing of the capacitive effects of the human body (predominantly 50Hz hum) using minimal power is achieved by using some of the latest arrivals in integrated linear circuitry. This effectively means that all moving parts (your fingers) are self-regenerative (for at least 70 years we sincerely hope). Patent pending.

INTERFACE

This is a radical improvement on known video-games control ADC techniques and is also the intellectual property of East London Robotics Ltd. Some advantages are:

1. Automatic proportional control of any standard moving-graphics software which is written in the normal simple-minded way as in the following example of Spaceship control:-

```
10  Read joystick port
    If move-forward-bit is set, then move ship one space forward.
    If rotate-right-bit is set, then move ship one direction clockwise.
    If rotate-left-bit is set, then move ship one direction anti-clockwise.
    Write new picture of ship to screen.
    GO TO 10
```

2. Compatibility with existing software - Even if the joystick does not turn a Stop-Go game into a sophisticated proportional control game, (eg if the game is not written as per example above) it will still work as a stop-go game.

3. Low cost, allowing each joystick to have its own interface, and low power consumption allowing simultaneous use of many joysticks on the same computer.

POWER

Current consumption approx 25ma of the unregulated supply. There is judged to be about 300ma of spare capacity on a Spectrum supply powering a lone 48k Spectrum. If a ZX Printer and/or ZX Interface 1 and Microdrive is in use, we do not recommend the use of more than two Tricksticks at the same time. Otherwise up to eight Tricksticks may be connected one behind the other making sure that each one has its player-selector plug in a different position.

ACTUAL COMPATIBILITY WITH EXISTING SPECTRUM SOFTWARE

The Trickstick on its own is compatible with any software which works with a Kempston joystick using the port address specified in the documentation accompanying that joystick (ie address 30 decimal)

In conjunction with our new programmable interface (available separately at special rates to Trickstick owners) the Trickstick is compatible with all Spectrum software which uses the Spectrum keyboard for input (as virtually all of it does).

TRICKSTICK ADDRESSING

The addressing is similar to that of the Spectrum keyboard in that A8 through A15 are used to differentiate between the eight possible Tricksticks on the Spectrum. The recommended addresses (all address lines high except for the three mentioned) are as follows:

				<u>Recommended Addresses</u>	
				Decimal	Hexadecimal
Player 1	A5	A6	A15 low	32671	7F9F
Player 2	A5	A6	A14 low	49055	BF9F
Player 3	A5	A6	A13 low	57247	DF9F
Player 4	A5	A6	A12 low	61343	EF9F
Player 5	A5	A6	A11 low	63391	F79F
Playex 6	A5	A6	A10 low	64415	FB9F
Player 7	A5	A6	A9 low	64927	FD9F
Player 8	A5	A6	A8 low	65183	FE9F

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Patents have been applied for to cover:

- a) The novel Analogue to Digital Techniques used in the Trickstick Interface.
- b) The use of both photo sensitivity and capacitive effects for video-game control.

The design of the Trickstick itself is covered by an application to register the design.

Issued by:

East London Robotics Limited,
No 11 Gate,
Royal Albert Dock,
London E16

IMPORTANT NOTE

1. It has come to our attention that a number of games written for the Kempston joystick do not use the addressing recommended by that company. When using the Trickstick with games written for the Kempston joystick it is therefore advisable to place the selector plugs on the Trickstick interface in the positions depicted below in order to overcome the problem.

STOP/GO MODE
(Normal for Kempston games)

SPEED-CONTROL MODE



2. We have come across one recent game (Rommel's Revenge by Crystal) which instead of asking you to key in which joystick you are using determines this automatically. This is done in such a way that the Trickstick is not recognised and so cannot be used with this game except by using our programmable adaptor.